



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

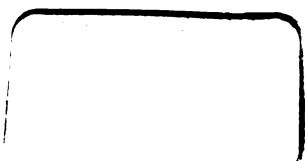


The New international year book

D 677.3.2



HARVARD
COLLEGE
LIBRARY



**THE NEW
INTERNATIONAL
YEAR BOOK**

**A COMPENDIUM OF THE WORLD'S
PROGRESS
FOR THE YEAR
1909**

**EDITOR
FRANK MOORE COLBY, M.A.**

**ASSOCIATE EDITOR
ALLEN LEON CHURCHILL**

**NEW YORK
DODD, MEAD AND COMPANY
1910**

Δ
HP 647.3.2
✓



*Mrs. T. W. Richards,
Cambridge*

**COPYRIGHT, 1910, BY
DODD, MEAD AND COMPANY**

PREFACE

The NEW INTERNATIONAL YEAR BOOK for 1909, like its two predecessors, the volumes for 1907 and 1908, is designed to serve as an encyclopædia of the year, placing on record, so far as possible within the limits of a single volume, the leading features

SCOPE OF THE YEAR BOOK of the year's activities in every field. It is not a specialist's handbook, but a general work of reference. Each of the departments, however, is prepared by a specialist and no pains have been spared to insure accuracy and the selection of the most important topics.

No other volume aiming at this degree of comprehensiveness is published in English. There are, of course, many annual publications dealing with special subjects, and there are, in the more general field, a number of almanacs, statistical handbooks, summaries and abstracts, but none of these attempts an encyclopædic survey of the year. The nearest approach to an annual encyclopædia is that excellent English publication, *Hazell's Annual*, but in this the comparatively wide range of topics is secured only by carrying the condensation of discussion almost to the vanishing point; and the space at its disposal does not admit any adequate record of progress in the arts, science and literature, or any full presentation of the year's statistics, to say nothing of the disadvantage, from the American point of view, of surveying the United States through the wrong end of the telescope.

Apart from the present volume there is in this country no work of reference that approaches the scope even of *Hazell's Annual*; there is no annual record of current history; there is no compilation of statistics at all comparable to the *Statesman's Year Book*; and there is no record of political events such as is supplied to British readers by the *British Annual Register*. The need of a comprehensive annual reference book in this field is too obvious to require demonstration. The only questions are those which concern the manner of execution. The chief difficulties arise from space limits, and the danger of disproportionate treatment and of the omission of important topics. As regards space the NEW INTERNATIONAL YEAR BOOK has an advantage over most annual publications in, that by reducing to a minimum introductory manner such as is to be found in general works of reference and is not especially applicable to the year, it gains space for the more adequate treatment of the year itself. It does not carry the same text, revised from year to year, but prepares the entire text anew each year. As to proportionate treatment and the proper selection of topics, no work of reference is free from defects, but an annual volume ought to show steady improvement in these respects, profiting from criticism and suggestion. The YEAR BOOK for 1909 exceeds somewhat the length of the previous year's issue. It includes an account of the recent progress of BIBLICAL CRITICISM, a more extended review of ELECTORAL REFORM proposals and achievements, with a special article under that head by Mr. Clinton Rogers Woodruff, and an ampler treatment of MUNICIPAL GOVERNMENT.

Among the leading features of the year 1909 requiring treatment in the present volume, the following may be mentioned: The movement of financial recovery which began in the closing months of 1908, gained strength in 1909, and in many in-

SOME FEATURES OF THE 1909 VOLUME—THE UNITED STATES

dustries, conditions were better than they were before the panic. Under the title FINANCIAL REVIEW will be found an account of the general tendencies, and in separate articles on the leading industries, on crops and on foreign countries, more specific details are given. The articles on AGRICULTURE, and allied topics, prepared under the direction of experts in the Department of Agriculture in Washington, record the most prosperous year in the history of the United States. Despite the improved methods of production and the increased output, the high prices continued, and before the close of the year, discussion of the high cost of living, most of it vague and speculative, had already swollen to formidable bulk. Facts bearing on this problem will be found in the articles PRICES, FOOD AND NUTRITION, AGRICULTURE, etc. In the United States the chief political interest of the year centred in the TARIFF, whose provisions are analyzed under that title, and whose passage through Congress with a summary of the debates will be found under the UNITED STATES, paragraphs on *Politics and Government*. Public interest in the subject of CONSERVATION OF NATURAL RESOURCES, continued during the year, and the matter assumed a political aspect, owing to the BALLINGER-PINCHOT CONTROVERSY, which is discussed in the article LANDS, PUBLIC, and in the paragraphs on *Politics and Government*, under UNITED STATES. In the historical paragraphs under UNITED STATES will also be found an account of the spirited controversies that arose in the closing months of the ROOSEVELT ADMINISTRATION over the Secret Service, over the absorption of the Tennessee Coal and Iron Company, and over the President's letter in regard to Senator Tillman; a review of the TAFT ADMINISTRATION, and of the contest as to the powers of the Speaker; a summary of both sessions of CONGRESS, of the FOREIGN RELATIONS of the United States, of the frauds in the CUSTOM HOUSE, etc. In the political record under the separate States, which has been revised by the editors of leading newspapers in each of the States, will be found a summary of legislation, and of the chief events in party politics, and a record of such important happenings as the collapse of the re-

PREFACE

form movement in San Francisco; the spread of PROHIBITION in Indiana and other States, and the check administered to the movement in Alabama where the constitutional amendment was defeated; the result of the November elections, especially in New York State, etc.

GREAT BRITAIN passed through the most interesting political year in her recent history.

TURKEY was the scene of a counter-revolution, whose prompt and complete suppression, followed by the deposition of Abdul Hamid, illustrated the strength of the new régime. Disorders in PERSIA finally culminated in the triumphant entry of the Nationalist forces into Teheran the restoration of the constitutional régime, the deposition of the Shah, and the accession of his young son, Ahmed Mirza. SWEDEN was the scene of one of the most formidable strikes

FOREIGN

in the history of labor on the continent of Europe. SPAIN was for many months the centre of public interest, owing to the Riff War, the Barcelona Riots, and the execution of Professor Ferrer. Republican institutions in FRANCE seemed for the moment menaced by the alarming advance of syndicalism, as illustrated by the two postmen's strikes. Naval maladministration was one of the chief topics of the year, and the debate on that subject in the Chamber led to the downfall of the Clemenceau Ministry, and the accession of M. Briand to the premiership. THE BALKAN QUESTION reached an acute phase in the early months of the year, when war between Austria and Serbia seemed at any moment imminent, but matters were finally amicably adjusted, and the Austrian annexation of the two provinces was acknowledged by the Powers as an accomplished fact. Negotiations with Turkey and Bulgaria as to compensation were successfully carried out. The weakness of parliamentary institutions in GREECE was illustrated by the mutinous spirit in both army and navy and by the high-handed measures of the Military League. In AFRICA a turning point was reached through the formation of the SOUTH AFRICAN UNION. In the Far East the long-standing difficulties between China and Japan were settled, for the time being at least, by the agreements of August and September.

In MECHANICAL ENGINEERING new methods evolved during the year for using the STEAM TURBINE efficiently as exemplified by the Melville-MacAlpine Reduction gear, offered a topic

APPLIED SCIENCE, ETC.

of more than passing interest. BRIDGE and CANAL construction moved on rapidly during the year, and the progress on the Panama Canal was as steady and important as it was lacking in sensational features, after the settlement of the lock vs. sea-level controversy. In other branches of CIVIL, MECHANICAL, SANITARY, and ELECTRICAL ENGINEERING the year's progress, while not marked by achievements of extraordinary importance and magnitude was of such character that it cannot be disregarded; and the same is true of BOTANY, CHEMISTRY, PHYSICS and the other sciences, although in ASTRONOMY the approach of Halley's comet contributed in addition, matter of popular interest. In AERONAUTICS the record was an unusually interesting one, including M. Blériot's notable flight across the Channel. In MEDICINE attention was called to the efforts to cope with such diseases as the SLEEPING SICKNESS, the HOOKWORM DISEASE, PELLAGRA, and CANCER, in all of which progress was reported. In MILITARY and NAVAL AFFAIRS the year was marked by many changes. Extensive rearmaments, especially of the artillery of European armies emphasized the ever present prospect of war. The MANŒUVRES of the year were conducted in a more practical spirit and on a larger scale. The NAVIES showed not only an increase in the size and number of battleships, but equally important changes in the development of personnel and equipment.

The material for the statistical articles is derived from official sources, and in the preparation of these articles as well as of those which deal with public affairs, especially in the United States and Canada, invaluable aid has been given by government officials. Among those to whom special recognition is due for such services may be mentioned the following: Major Frank McIntyre, Acting Chief of the Bureau of Insular Affairs, for information in regard to the Philippines; Mr. O. P. Austin, Chief of the Bureau of Statistics, Department of Commerce and Labor; Mr. E. Dana Durand, Director of the Census; various officials in the Departments of War, Navy and the Interior; the Superintendents of Education, Commissioners of Charities and Corrections, Treasurers, the officers of colleges, societies and religious bodies; and the editors of leading newspapers in the States, who have coöperated in the preparation of the paragraphs on State politics and history.

FRANK MOORE COLBY.

EDITOR

FRANK MOORE COLBY, M. A.

ASSOCIATE EDITOR

ALLEN LEON CHURCHILL

LIST OF CONTRIBUTORS

AGRICULTURE, HORTICULTURE, FOODS, IRRIGATION, BOTANY, FORESTRY, ETC.

ALFRED CHARLES TRUE, PH. D.,
UNITED STATES DEPARTMENT OF AGRICULTURE,
AND

EDWIN WEST ALLEN, PH. D.,
UNITED STATES DEPARTMENT OF AGRICULTURE:
ASSISTED BY EXPERTS IN THE DEPARTMENT OF
AGRICULTURE AT WASHINGTON.

ANTHROPOLOGY AND ETHNOLOGY

CLARK WISSLER, PH. D.,
AMERICAN MUSEUM OF NATURAL HISTORY, AND
ROBERT H. LOWIE, PH. D.,
AMERICAN MUSEUM OF NATURAL HISTORY.

ARCHITECTURE

A. D. F. HAMLIN, M. A.,
PROFESSOR OF THE HISTORY OF ARCHITECTURE,
AND EXECUTIVE HEAD SCHOOL OF ARCHITEC-
TURE, COLUMBIA UNIVERSITY.

ARCHÆOLOGY

OLIVER SAMUEL TONKS, PH. D.,
PRECEPTOR IN ART AND ARCHÆOLOGY, PRINCE-
TON UNIVERSITY.

ASTRONOMY AND METEOROLOGY

T. W. EDMONDSON, PH. D.,
PROFESSOR OF MATHEMATICS, NEW YORK UNI-
VERSITY.

BIBLICAL CRITICISM

GEORGE WILLIAM GILMORE, M. A.,
FORMERLY PROFESSOR BIBLICAL HISTORY AND
LECTURER ON COMPARATIVE RELIGION IN BANGOR
THEOLOGICAL SEMINARY.

CHEMISTRY

M. A. ROSANOFF, SC. D.,
HEAD OF THE UNIVERSITY CHEMICAL DEPART-
MENT AND DIRECTOR OF LABORATORIES, CLARK
UNIVERSITY, WORCESTER, MASS., AND
ROBERT H. CLARK, PH. D.,
UNIVERSITY DOCENT AND COLLEGIATE ASSIST-
ANT PROFESSOR, CLARK UNIVERSITY, WOR-
CESTER, MASS.

CHEMISTRY, INDUSTRIAL; AND EXPOSI- TIONS

MARCUS BENJAMIN, PH. D.,
EDITOR FOR THE UNITED STATES NATIONAL
MUSEUM.

DRAMA, PAINTING AND SCULPTURE

PHILIP G. HUBERT, JR.,
FORMERLY ART WRITER FOR THE NEW YORK
"EVENING POST"; NOW OF THE DRAMATIC AND
MUSICAL DEPARTMENT OF THE NEW YORK
"HERALD."

EDUCATION

CLYDE FURST, M. A.,
SECRETARY, TEACHERS COLLEGE, COLUMBIA UNI-
VERSITY.

ECONOMICS AND POLITICAL SCIENCE

FRANK HAMILTON HANKINS, PH. D.,
ASSISTANT PROFESSOR OF ECONOMICS, CLARK
UNIVERSITY.

ELECTORAL REFORM AND INTERNA- TIONAL ARBITRATION

CLINTON ROGERS WOODRUFF, PH. D.,
SECRETARY OF THE NATIONAL MUNICIPAL
LEAGUE AND OF THE MOHONK CONFERENCE,
AND PRESIDENT OF THE BOARD OF PERSONAL
REGISTRATION, PHILADELPHIA.

ELECTRICAL ENGINEERING

WILLIAM E. WICKENDEN, B. S.,
ASSISTANT PROFESSOR OF ELECTRICAL ENGI-
NEERING, MASSACHUSETTS INSTITUTE OF TECH-
NOLOGY.

EXPLORATION AND POLAR RESEARCH

CYRUS C. ADAMS,
MEMBER OF THE STAFF OF THE AMERICAN
GEOGRAPHICAL SOCIETY. GEOGRAPHICAL WRITER
FOR THE NEW YORK "SUN."

FOREIGN GAZETTEER

EDWARD LATHROP ENGLE AND
ALLAN EVA ENGLE.

GEOLOGY

DAVID HALE NEWLAND,
ASSISTANT STATE GEOLOGIST, NEW YORK.

LITERATURE, AMERICAN AND ENGLISH

EDWIN E. SLOSSON, PH. D.,
LITERARY EDITOR, "THE INDEPENDENT."

LITERATURE, FRENCH

ALBERT SCHINZ, PH. D.,
PROFESSOR OF FRENCH LITERATURE, BRYN
MAWR COLLEGE.

LITERATURE, GERMAN

AMELIA VON ENDE,
AMERICAN CORRESPONDENT FOR THE "LITER-
ARISCHES ECHO."

MANUFACTURES, TECHNOLOGY, AËRO- NAUTICS AND FIRE PROTECTION

HERBERT TREADWELL WADE,
EDITOR OF THE "ENGINEERING INDEX ANNUAL,"
1909.

MEDICINE

ALBERT WARREN FERRIS, A. M., M. D.,
PRESIDENT NEW YORK STATE COMMISSION IN
LUNACY; FORMER ASSISTANT IN NEUROLOGY,
COLUMBIA UNIVERSITY; ASSISTANT IN MED-
ICINE, NEW YORK UNIVERSITY AND BELLEVUE
MEDICAL COLLEGE, ASSISTED BY

DAVID G. YATES, M. D.,
SURGEON, NEW YORK CHILDREN'S HOSPITAL AND
DEMILT DISPENSARY.

MUSIC

ALFRED REMY, M. A.,
PROFESSOR OF HARMONY AND COUNTERPOINT,
INTERNATIONAL CONSERVATORY OF MUSIC, NEW
YORK.

NAVAL PROGRESS AND BATTLESHIPS

COMMANDER H. F. BRYAN,
UNITED STATES NAVY.

PHILOLOGY

LOUIS H. GRAY, PH. D.,
ASSOCIATE EDITOR OF THE "ORIENTALISCHE
BIBLIOGRAPHIE," AND

CHARLES KNAPP, PH. D.,
PROFESSOR OF CLASSICAL PHILOLOGY, BARNARD
COLLEGE, COLUMBIA UNIVERSITY.

PHILOSOPHY

FRANK THILLY, A. M., PH., LL. D.,
PROFESSOR OF PHILOSOPHY, SAGE SCHOOL OF
PHILOSOPHY, CORNELL UNIVERSITY.

PHYSICS

GEORGE B. PEGRAM, PH. D.,
ADJUNCT PROFESSOR OF PHYSICS, COLUMBIA
UNIVERSITY.

PSYCHOLOGY, PSYCHICAL RESEARCH, PSYCHOTHERAPY AND EUGENICS

MADISON BENTLEY, B. S., PH. D.,
ASSISTANT PROFESSOR OF PSYCHOLOGY IN COR-
NELL UNIVERSITY.

RAILWAYS

RODNEY HITT, B. S., M. E.,
ASSOCIATE EDITOR "STREET RAILWAY JOURNAL."
ASSOCIATE MEMBER MASTER CAR BUILDERS' AS-
SOCIATION.

SANITARY ENGINEERING AND MUNICI- PAL ACTIVITIES

MOSES NELSON BAKER, C. E.,
ASSOCIATE EDITOR OF THE "ENGINEERING
NEWS."

SPORTS

CHARLES A. TAYLOR,
MEMBER OF THE STAFF OF THE NEW YORK
"TRIBUNE"

TARIFF

ALVIN SYDNEY JOHNSON, PH. D.,
DEPARTMENT OF ECONOMICS, UNIVERSITY OF
TEXAS.

ZOOLOGY

AARON L. TREADWELL, PH. D.,
PROFESSOR OF BIOLOGY, VASSAR COLLEGE.

ILLUSTRATIONS

	FACING PAGE
AERONAUTICS: CURTISS WITH HIS BI-PLANE IN A RECORD FLIGHT AT RHEIMS; BLERIOT	
CROSSING THE ENGLISH CHANNEL	4
AERONAUTICS: AVIATION CONTEST AT RHEIMS; THE ZEPPELIN AIRSHIP OVER FRANKFORT	6
NEW BUILDINGS FOR AGRICULTURAL EDUCATION: IOWA STATE COLLEGE; GEORGIA STATE	
COLLEGE OF AGRICULTURE	8
THE NEW YORK MUNICIPAL BUILDING	44
THE NEW BUILDINGS OF UNION THEOLOGICAL SEMINARY, NEW YORK CITY	46
U. S. BATTLESHIP <i>North Dakota</i>	84
BELGIUM: THE LATE KING LEOPOLD II. KING ALBERT I.	90
BRAZIL: THE LATE PRESIDENT ALFONSO AUGUSTO MORIERA PENNA; DR. NILO PECHANA,	
VICE-PRESIDENT	104
BREAKWATERS: THE NEW ARTIFICIAL HARBOR AT DOVER, ENGLAND	106
THE MANHATTAN BRIDGE OVER THE EAST RIVER	108
THE HUDSON-FULTON CELEBRATION. THE REPLICA OF THE <i>Half Moon</i> IN THE HUDSON	
RIVER. THE <i>Clermont</i>	140
THE HUDSON-FULTON HISTORICAL PAGEANT PASSING THE COURT OF HONOR	142
THE ROYAL FAMILY OF CHINA	160
INTERIOR VIEW OF THE NEW THEATRE, NEW YORK CITY	208
FOUR PERSONS PROMINENT IN THE DRAMA WHO DIED IN 1909: CLYDE FITCH, HELENA	
MODJESKA, BENOIT-CONSTANT COQUELIN, HEINRICH CONRIED	210
ELECTRIC RAILWAYS: THE NEW ELECTRIC LOCOMOTIVE FOR THE PENNSYLVANIA TUNNELS	
AND TERMINAL; THE NEW ELECTRIC FREIGHT LOCOMOTIVE FOR THE N. Y., N. H. & H.	
RAILROAD	226
GENERAL VIEW OF THE ALASKA-YUKON-PACIFIC EXPOSITION	236
FORESTRY: THE THREE SISTERS FROM FISH LAKE, CASCADE FOREST RESERVE, OREGON	252
FRANCE: GEORGES CLEMENCEAU, RETIRING PRIME MINISTER; ARISTIDE BRIAND, PRIME	
MINISTER	258
GERMANY: PRINCE BERNHARD VON BULOW; DR. THEOBALD VON BETHMANN-HOLLWEG,	
CHANCELLOR	290
MONORAIL EXPERIMENTS OF 1909: THE SCHERL MONORAIL CAR; THE BRENNAN MONORAIL	
CAR	332
EDWARD EVERETT HALE	334
HARBOR IMPROVEMENT AT PARA, BRAZIL	336
E. H. HARRIMAN	338
IRRIGATION: IRRIGATING YOUNG ALFALFA, USING THE CORRUGATION METHOD; CONSTRUCT-	
ING A ROCK-FILL DAM FOR AN IRRIGATION RESERVOIR	380
PRINCE HIROBUMI ITO	386
THE LATE JOHN A. JOHNSON, GOVERNOR OF MINNESOTA	396
LITERATURE: ALGERNON CHARLES SWINBURNE RICHARD WATSON GILDER, F. MARION CRAW-	
FORD, SARAH ORNE JEWETT	426
GEORGE MEREDITH	452
MILITARY PROGRESS: MAXIM GUN IN ACTION; THE KAISER MANOEUVRES OF 1909	462
MUSIC: FOUR ARTISTS PROMINENT IN 1909; FERUCCIO BUSONI, SERGEI RACHMANINOFF,	
LEO SLEZAK, LUISA TETRAZZINI	488
SIMON NEWCOMB	514
NICARAGUA: PRESIDENT JOSE SANTOS ZELAYA; DR. JOSE MADRIZ	528
PANAMA CANAL: WORK ON THE GATUN LOCKS	552
COMMANDER ROBERT E. PEARY, U. S. N.	558
PERSIA: MOHAMMED ALI, AHMED MIRZA, SIPAHNDAR KHAN	566
RAILWAYS: THE NEW PENNSYLVANIA TERMINAL, NEW YORK CITY	612

ILLUSTRATIONS

	FACING PAGE
SCULPTURE: "ABRAHAM LINCOLN" BY GUTZON BORGLUM; "GREEK RELIGION" BY D. C. FRENCH	642
SIR ERNEST H. SHACKLETON, C. V. O.	646
STEAM TURBINE: REAR ADMIRAL G. W. MELVILLE, GEORGE WESTINGHOUSE, JOHN H. MACALPINE; THE MELVILLE-MACALPINE REDUCTION GEAR	670
PRESIDENT WILLIAM H. TAFT AND CABINET	734
THE UNITED STATES SUPREME COURT: THE LATE JUSTICE RUFUS W. PECKHAM; JUSTICE HOBACE H. LURTON	738
UNITED STATES SENATORS: ELIHU ROOT, NELSON W. ALDRICH, H. D. MONEY, EUGENE HALE	740
UNITED STATES REPRESENTATIVES: SPEAKER JOSEPH G. CANNON, CHAMP CLARK, JAMES A. TAWNEY, SERENO E. PAYNE	744
THE NEW SENATE OFFICE BUILDING AT WASHINGTON; THE CONFERENCE HALL; EXTERIOR VIEW	748
FOUR UNIVERSITY OR COLLEGE PRESIDENTS: ERNEST FOX NICHOLS, MARION LEROY BURTON, ABBOTT LAWRENCE LOWELL, WILLIAM ARNOLD SHANKLIN	762

MAPS

ALASKA	20
INDIA	362
MANCHURIA: RAILWAY MAP	392
PANAMA CANAL	550
PITTSBURG	562
PHILIPPINES: NATURAL PRODUCTS	572
ARCTIC REGIONS	586
ANTARCTIC REGIONS	588
SOUTH AFRICA	658
TURKEY IN ASIA	712

NOTE: Cross references in SMALL CAPITALS indicate that the allusion is to a separate article; cross references in *italics* denote that the reference is to a subdivision of a main article. A cross reference in *italics*, standing alone in an article, carries the reference to another subdivision of the same article. The letters q. v. (*quod vide*=Latin "which see") in parenthesis following a word, indicate that the subject is treated under its own name elsewhere in the volume.

NOTE: In certain tables in this work it will be found, by addition, that the totals do not correspond to the sum of the items. This is the result of the omission or inclusion of certain small items which are not mentioned in the table, but are included in the totals. This is a usage frequently employed in the compilation of government statistics, from which sources the greater number of the tables in the YEAR BOOK are taken.

THE NEW INTERNATIONAL YEAR BOOK

ABANDONED FARMS. See AGRICULTURE.
ABDUL HAMID II. See TURKEY.

A'BECKETT, ARTHUR WILLIAM. An English writer and dramatist, died January 14, 1909. He was born at Fulham, October 25, 1844, and was educated at Felstead School. He served for some years in the War Office, and also practiced law. From 1865 to 1868 he edited the *Glowicorm* and from 1868 to 1870 the *Britannia Magazine*. He acted as special correspondent in the Franco-German War, and in 1874 joined the staff of *Punch*, on which he remained until 1902. In 1902-3 he edited *John Bull*. A'Beckett wrote several three-act comedies, and many books, among them, *The Ghost of Grimstone Grange* (1877), *The Mystery of Mostyn Manor* (1878); *Modern Arabian Nights* (1885); *The Modern Adam* (1899); *The a'Becketts of Punch* (1903).

ABRUZZI, DUKE OF THE. See EXPLORATION.

ABYSSINIA. An independent country in eastern Africa comprising several so-called kingdoms besides territories and dependencies. The area is estimated at 308,000 square miles, and the population at upwards of 9,000,000. The resident population of most of the towns is very small, but the capital, Addis Abeba, is stated to have between 30,000 and 35,000 inhabitants; Harrar, 40,000; Gondar, 5000; Aksum, 5000; Mahdera-Mariam, 4000; and Diré Dawa, 4500. Coptic Christianity is preferred, and education, which, according to an edict issued by the Emperor in October, 1907, is compulsory for male children, is carried on by Coptic teachers provided by the government.

The inhabitants are largely engaged in the raising of cattle, sheep, and goats. Next in importance is agriculture, though backward; coffee and cotton production, however, is increasing. Placer gold mining is carried on to some extent. Foreign trade is conducted principally through Harrar, where in the fiscal year 1905-06 the imports were valued at 4,046,100 dollars and the exports at 3,377,440 dollars (dollar=about 50 cents). The greater part of the imports consisted of cotton goods, and nearly one-half of American gray shirting. The exports consisted of coffee, 1,206,260 dollars; hides and skins, 1,142,000; ivory, wax, gold,

ghee, civet, and gum arabic. Besides Harrar important trading centres are Addis Abeba and Ankober.

There are very few good roads in Abyssinia, but in and about Addis Abeba some metalled roads have recently been constructed. A railway extends from Jibuti, on the French Somali coast, 193 miles to Diré Dawa, about 25 miles from Harrar. In January, 1909, a new company was formed to complete the line through Harrar and to Addis Abeba, 528 miles distant from Jibuti. The survey has been made and grading begun. Telegraph lines (over 1000 miles) connect the capital with Harrar, with Jibuti, and with Massawa, in Eritrea. There is also a considerable amount of telephone line.

The financial business of the government is transacted by the Bank of Abyssinia (main office at Addis Abeba), which has an authorized capital of £500,000. The current coin of the country is the Maria Theresa dollar, but the new Menelek dollar (the talari, worth about 50 cents) is the official standard.

The Abyssinian government is essentially of a feudal character. Each of the large provinces is governed by a *Ras*, a prince or feudal chief, under whom are governors of districts and chiefs of villages. The more important *Rases* constitute a kind of state council. At the head of the state is the Emperor, Menelek II. in 1909, who as King of Shoa became ruler of all Abyssinia in 1889. He has constituted a council of ministers, which met for the first time in July, 1908. The administration of justice lies with the *Rases* and petty chiefs, with right of appeal to the Emperor.

The Abyssinian army consisted of standing forces or garrisons under the command of the *Ras* of each province but susceptible of being united to form a single united army whose strength was estimated at 100,000 men. The organization and control of this united force is very weak and the armament and equipment far from uniform. The mounted men constitute an irregular cavalry, the infantry were in part armed with French repeating rifles, while the artillery was provided with 50 modern and 30 old pattern field guns. In the mountain batteries there were included some Hotchkiss guns. In addition to the forces mentioned the retainers of the various chiefs were considered

as available for military service, forming a sort of militia, the strength of which was put at about 140,000 men.

Owing to difficulties between the Emperor and the new company which had taken over the property of an earlier company formed to construct a line from Diré Dawa to Addis Abeba, but forced by the French government into liquidation, the Emperor canceled his concession in March. In spite of this the company began work at Diré Dawa. Lidj Jeassu (or Eyassu), son of the Emperor's daughter and one of the powerful Abyssinian chiefs, who had been declared successor by Menelek in 1908, was married on May 16, 1909, to the Princess Romanie, the daughter of the late Emperor John.

ACADEMIES, THE INTERNATIONAL ASSOCIATION OF. An Association established in 1899 on the initiative of the Royal Society of London, representing twenty academies and learned associations of Europe and America. Delegates of the constituent bodies meet once in every three years. Meetings were held in Paris in 1901, London in 1904, and Vienna in 1907. The next meeting will be held in Rome in 1910. The International Catalogue of Scientific Literature is one of the projects with which the Association is occupied. Others are a complete edition of the works of Leibnitz, an encyclopedia of Islam, and the consideration of the question of the interchange of manuscripts and books between different countries.

ACADEMY, BRITISH. See **BRITISH ACADEMY.**

ACADEMY, FRENCH. (ACADÉMIE FRANÇAISE). An institution founded in 1635 by Cardinal Richelieu, and reorganized in 1910. It is the first of the five academies constituting the Institute of France, the other four being: the Academy of Inscriptions and Belles-lettres, Academy of Sciences, Academy of Fine Arts, and Academy of Moral and Political Science. The Academy consists of forty members. It is the chief tribunal of questions relating to the niceties of the French language and of grammar, rhetoric, poetry and the classification of French classics. The members receive an annual stipend of 1500 francs, and in addition, the six members of the Dictionary Committee receive each 1000 francs annually. The Academy annually distributes 12,000 francs in prizes alternately for poetry and eloquence, besides a number of smaller prizes. Five new members were chosen in that year as follows: René Doumic to fill the vacancy caused by the death of Boissier; Marcel Prevost to fill the vacancy caused by the death of Sardou; Jean Aicard to fill the vacancy caused by the death of Coppée; Eugène Brieux to fill the vacancy caused by the death of Halévy; and Raymond Poincaré to fill the vacancy caused by the death of Emile Gebhardt. There was still one vacancy at the end of 1909. The present academicians and the dates of their election are:

Émile Ollivier, 1870; Alfred Jean François Mézières, 1874; Othéonin P. de Cléron Comte d'Haussonville, 1886; Jules Arnaud Arsène Claretie, 1888; Eugène Marie Melchior, Vicomte de Vogué, 1888; Charles Louis de Saulses de Freycinet, 1890; Louis Marie Julien Viaud (Pierre Loti), 1891; Ernest Lavisse, 1892; Paul Louis Thureau-Dangin, 1893; Paul Bour-

get, 1894; Henri Houssaye, 1894; Jules Lemaitre, 1895; Jacques Anatole Thibault (Anatole France), 1896; Louis Jules Albert, Comte Vandal, 1896; Albert Comte de Mun, 1897; Gabriel Hanotaux, 1897; Henri Léon Émile Lavedan, 1899; Paul Deschanel, 1899; Paul Hervieu, 1900; Auguste Émile Faguet, 1900; Charles Jean Melchior, Marquis de Vogué, 1901; Edmond Rostand, 1901; Frédéric Masson, 1903; René Bazin, 1903; Étienne Lamy, 1905; Alexandre Félix Joseph Ribot, 1906; Maurice Barrès, 1906; Marquis de Ségur, 1907; Maurice Donnay, 1907; Maître André Barboux, 1907; Jules Henri Poincaré, 1908; Jean Richepin, 1908; Frances Charmes, 1908, René Doumic; Marcel Prevost; Jean Aicard; Eugène Brieux; Raymond Poincaré, 1909.

ACADEMY OF ARTS AND LETTERS, AMERICAN. A body which had its beginning in 1898 when, at its annual meeting the American Social Science Association nominated a small group of authors and artists to constitute a National Institute of Arts and Letters. Qualification for membership in this body was to be notable achievement in art, music or literature, and the membership was limited at first to 150 and afterwards to 250. When the Institute had gathered to itself a large proportion of the chief authors and artists of the United States, it declared its purpose of proceeding to an organization of an Academy of Arts and Letters, the members of which should be chosen from the members of the Institute. It limited the number of members in the new Academy to be chosen from the National Institute of Arts and Letters to seven, and provided for a progressive responsibility in the choice of those to be elected later. The first seven members were selected in 1904 and were the following: William Dean Howells, Augustus Saint-Gaudens, Edmund Clarence Stedman, John La Farge, Samuel Langhorne Clemens, John Hay and Edward MacDowell. These seven original members were empowered immediately to elect eight more and then chose: Henry James, Charles Follen McKim, Henry Adams, Charles Eliot Norton, J. Q. A. Ward, T. R. Lounsbury, Theodore Roosevelt and Thomas Bailey Aldrich. These fifteen then proceeded to elect five more—Joseph Jefferson, John S. Sargent, R. W. Gilder, H. H. Furness, and John Bigelow. These twenty representatives then elected ten additional, raising the total membership to thirty. The new members chosen were Winslow Homer, Carl Schurz, A. T. Mahan, Joel Chandler Harris, D. C. French, John Burroughs, J. F. Rhodes, E. A. Abbey, Horatio W. Parker, and William M. Sloane.

The constitution of the Academy declares that its aim is to represent and further the interests of the fine arts and of literature. It established fifty as the limit of its membership. Elections have taken place at intervals during the past five years, first to enlarge the membership from thirty to fifty, and then to fill the vacancies which have been caused by death. There are still several vacancies to be filled to make up the full membership of fifty. As it was constituted in 1909 the Academy was composed of one architect, two composers, two sculptors, eight painters and the remainder men of letters.

The members in 1909 were as follows: Edwin Austin Abbey, Charles Francis Adams, Henry Adams, John Bigelow, Edwin Howland Blash-

field, William Cary Brownell, John Burroughs, George Washington Cable, George Whitfield Chadwick, William Merritt Chase, Samuel Langhorne Clemens, Kenyon Cox, Henry Van Dyke, Daniel Chester French, Horace Howard Furness, Basil Lanneau Gildersleeve, Arthur Twining Hadley, Thomas Hastings, Thomas Wentworth Higginson, Winslow Homer, Julia Ward Howe, William Dean Howells, Henry James, Robert Underwood Johnson, John La Farge, Henry Cabot Lodge, Thomas Raynesford Lounsbury, Hamilton Wright Mabie, Alfred Thayer Mahan, Brander Matthews, William Vaughan Moody, John Muir, Thomas Nelson Page, Horatio William Parker, James Ford Rhodes, Theodore Roosevelt, John Singer Sargent, William Milligan Sloane, Francis Hopkinson Smith, Abbott Handerson Thayer, Elihu Vedder, John Quincy Adams Ward, Andrew Dickson White, Woodrow Wilson, George Edward Woodberry.

Deceased: Thomas Bailey Aldrich, Francis Marion Crawford, Richard Watson Gilder, Daniel Coit Gilman, Edward Everett Hale, Joel Chandler Harris, John Hay, Bronson Howard, Joseph Jefferson, Henry Carey Lea, Edward MacDowell, Charles Follen McKim, Donald Grant Mitchell, Charles Eliot Norton, Augustus Saint-Gaudens, Carl Schurz, Edmund Clarence Stedman.

The officers of the Academy are: President, William Dean Howells; Chancellor, Professor W. M. Sloane; Permanent Secretary, Robert Underwood Johnson.

ACONCAGUA, MOUNT. See **EXPLORATION.**

ADEN. A British dependency in southwestern Arabia, forming a part of the Bombay Presidency. Area, 75 square miles; population in 1901, 41,222. Attached to Aden are the island of Perim (area 5 square miles; population, 2752), the Kuria Muria Islands (ceded by the Sultan of Oman for landing the Red Sea cable), and the Aden Protectorate, which has an area of about 9000 square miles and a population of about 100,000. Aden is strongly fortified, and is important chiefly for its strategic position at the entrance to the Red Sea and as a coaling station. The trade is almost entirely a transshipment one. The leading imports are cotton goods, grain, hides and skins, and tobacco; exports, the articles mentioned as imports and coffee, gums, civet, ivory, and wax. In 1907-8 the sea-borne imports were valued at Rs. 44,669,050, and the sea-borne exports, Rs. 40,471,126 (1 rupee=32.44 cents); imports and exports by land, Rs. 2,475,007 and Rs. 1,652,492, respectively. The boundary between the Aden Protectorate and the Turkish vilayet of Yemen, until recently in dispute, has been delimited.

ADULTERATION. See **FOOD and NUTRITION.**

ADVENTISTS, SEVENTH DAY. A religious denomination which was founded originally on the doctrine of the second coming of Christ, which was quite extensively believed in the United States and Europe during the years 1840-44. In the earlier movement the Adventists held that the prophetic period of Daniel 8 reached to 1844—and "then shall the sanctuary be cleansed," which they interpreted to mean the cleansing of the earth at the coming of Christ. After the passing of the time set for this in 1844, many of the believers gave up the doctrine, while others, on reviewing the histori-

cal prophetic evidences, thought that the mistake was in believing that the sanctuary to be cleansed was this earth, whereas it was the sanctuary in Heaven that was to be cleansed, referring to the final work of Christ in the heavenly sanctuary, just before his second coming. Thus, there arose in New England in 1846 a small body who, while believing in the second coming of Christ, have never set a time for that event, but hold to the Scripture statement that it is "near, even at the door," and also observe the seventh day of the week as the Sabbath. At the close of 1909 the Seventh Day Adventist denomination, whose headquarters are at Washington, D. C., had 22 union conferences, 107 local conferences, 135 foreign mission stations, 33 being in non-Christian lands, and over 2500 churches in eighty of the principal countries of the world, with about 100,000 communicants. For the spread of the evangelistic work there was contributed by the denomination during 1909 approximately \$2,000,000. In institutional lines the work is represented by 40 colleges and academies, and 550 primary and intermediate schools. There are 26 denominational publishing houses, which print 125 papers. The denomination also operates over 80 sanitariums with which there are connected over 2000 physicians and trained employees. The next general conference of the denomination meets in 1913.

There are in addition to the Seventh Day Adventists several bodies bearing the name of Adventists which have practically nothing in common with the former except possibly the doctrine of the second coming of Christ, and even there the connection is remote. These bodies are the Evangelical or the Advent Christians, Church of God, the Liberal Advent Union, and the Churches of God in Jesus Christ. Of these the Advent Christians numbered in 1909 26,799 communicants, 550 churches and 528 ministers. The Churches of God in Jesus Christ numbered 2124 communicants, with 62 churches and 56 ministers. The other bodies are composed of but a few hundred respectively. The Advent Christians publish several papers, including the *World's Crisis* and the *Messiah's Advent*.

AËRONAUTICS. The successful flights of the Wright Brothers and Henri Farman with their biplanes in 1908 had demonstrated the practical achievement of a heavier-than-air machine that could maintain itself in the air and fly over considerable distances at the control of the operator. These were followed in 1909 by further advances in the science and practice of aviation no less marked than they were sensational. During 1908 the monoplane in the hands of Blériot and Esnault-Pelterie had been developed to a point where it was capable of extended flight, but even at the end of the year the biplane with the double supporting surface was looked upon as the far more practical machine. In 1909, however, the monoplane shared the honors with the biplane and was wonderfully successful at the big aviation meets, besides figuring in some sensational flights. In fact in considering the record of the year in aviation due emphasis must be placed on many sensational achievements, though these must not be permitted to obscure the mechanical improvements in the various machines effected by numerous inventors or the evolution of various distinct types brought about through the

efforts of careful designers. Furthermore these same sensational achievements doubtless aroused in the public mind the belief that the era of widespread and commercial navigation of the air was at hand, and that aëroplane and airship would soon rank with, if not supplant, the battleship as engines of war. By some qualified critics it was believed that at the end of the year 1909 a certain limit had been attained in the development of the flying machine, notwithstanding the demonstrated success of machines of varied types and designs. For with the development of designs of flying machines must be considered the improvement of the light-weight high-efficiency internal combustion motor as developed from that employed on motor boats and motor vehicles. This type of engine by 1909 had reached a high state of perfection and no great advances or radical innovations in design or construction could be anticipated. In the construction of the aëroplanes themselves there was demanded naturally a maximum of strength with a minimum of weight such as was to be found in no other branch of mechanical engineering. This was attained by various designers in different ways, certain features often presenting distinct advantages. Nevertheless the fact that stood out prominently in many of the competitions was the necessity of considering the ability of the aviator, and often skill in control and manœuvring figured even more conspicuously than mere design of the supporting surfaces. In fact, M. G. Garnier, writing in *L'Aérophile*, states that the conclusions to be drawn from the competitions at Rheims in 1909 might be summarized and expressed in figures, thus: Pilot's importance, 60 per cent.; motor's importance, 30 per cent.; importance of the machine itself, 10 per cent. Perhaps the results of the year's work might be summarized briefly before passing to the consideration of the year's leading events. Speaking generally it may be said that there was less development in the biplane as used by the Wrights, Curtiss, Farman, Voisin, and others over the machines of 1908, and that by their reliability and stability they had been brought to approach a standard or final type. The biplane, which it was recognized would prove more speedy if stability could be secured, was greatly improved, and for speed and high flying met with great success and led to extensive construction of more or less similar machines. Ease of handling was secured with these monoplanes, and the instability predicted was not realized and their successful operation in some very daring flights as well as in competition was noteworthy. Triplanes and quadroples were also tested during the year, but without important results, and likewise no startling achievements were to be recorded in helicopters or other similar devices.

WRIGHT BROTHERS AËROPLANE FOR U. S. ARMY. In July Orville Wright resumed the acceptance tests of the aëroplane built for the United States Army at Fort Myer, which had been interrupted by the accident of the previous year in which Lieutenant Selfridge was killed and Mr. Wright injured. These trials, which lasted for the best part of two weeks, proved eminently successful and resulted in the acceptance of the machine at the contract price of \$30,000, all the conditions being fully satisfied. In an official time test held on July 27, the machine carrying a passenger in addition to

the aviator, was in the air for one hour and thirteen minutes, flying in closed circles over the drill field. On July 30 the government test was completed by a flight of ten miles across country in 14 minutes or at an average rate of 42.58 miles an hour. A passenger was also carried in this test and the aëroplane was demonstrated to be thoroughly under control. After its acceptance by the government the new aëroplane was sent to a post of the Signal Corps at College Park in Maryland, where a number of the officers received instruction in its use and management and numerous flights were undertaken.

FLIGHT ACROSS BRITISH CHANNEL. Popular attention was directed to the aëroplanes of MM. Blériot and Latham by their attempts to fly over the English Channel in the early summer. In the previous year M. Blériot had exhibited an aëroplane of excellent design and construction and had made a notable cross-country flight which indicated that he must be considered in the progress of aviation. M. Latham, on the other hand, began his flights with the Antoinette monoplane in the spring of 1909, and on June 12 at Juvisy he made a flight of 30 miles in 39 minutes, winning the Goupy prize. Straightway he determined on a flight across the English Channel, and on July 19, starting from Sangatte, made the attempt. This was unsuccessful owing to defective operation of the engine and Latham fell into the sea after going 11 miles and was rescued by an accompanying torpedo boat. A second attempt on July 27 also failed, though the aviator was within a mile and a half of Dover when he fell into the sea and again was rescued with his machine. In the meantime Louis Blériot, who had made some promising flights with his new monoplane during the spring and early summer, also went to Calais and on July 25 successfully accomplished the first flight across the British Channel in a heavier-than-air machine, from Baraques to Dover, a distance of 32 miles, which was accomplished in 35 minutes. For distance this was by no means a record flight and conditions were not as difficult as in many cross-country flights, but the achievement straightway struck the popular fancy, so that an even greater interest was manifested in the subject of aviation. On August 7 Wilbur Wright's record of 2 hours, 20 minutes, 23 seconds for duration of a flight, made December 31, 1908, at Auvours, winning the Michelin cup, was supplanted by that made by Roger Sommer, a pupil of Farman, who flew for 2 hours, 27 minutes, 15 seconds.

THE RHEIMS AVIATION MEET. Interest in aviation further was stimulated by an important gathering at Rheims, France, beginning August 22, where various competitions were held in which 38 aëroplanes were entered and of these 36 made successful flights. This very successful meet must be considered as marking an epoch in the history of aviation, and here were represented machines of many different makers and schools, the great majority of which had passed the experimental stage. There were monoplanes and biplanes engaged in active competition, and so general was the testing of the different machines that at times as many as six were to be seen manœuvring in the air at once. Furthermore, during the competition various conditions of wind prevailed and it was shown that the aëroplane had reached a point



Photograph by Edwin Levick, New York

GLENN H. CURTISS IN HIS BI-PLANE MAKING A RECORD FLIGHT AT RHEIMS



Photograph by Edwin Levick, New York

**BLÉRIOT CROSSING THE ENGLISH CHANNEL JULY 25, 1909
APPROACHING THE ENGLISH COAST**

in its development where it was no longer forced to wait for a perfect calm or ideal state and direction of the wind. Both speed and endurance were successfully demonstrated, a record of 47.78 miles an hour being made in a short-distance competition, while in an endurance test in a long-distance race 111.88 miles were made in 3 hours, 4 minutes, 55½ seconds. In all of the machine's ability to control and manoeuvre had been so secured that this point had come to be taken for granted.

The leading events at the Rheims meet were the competition for the James Gordon Bennett International Cup, valued at \$2500, together with a cash prize of \$5000 for the successful pilot, for the fastest time over 20 kilometres (12.42 miles), and the Grand Prix for the greatest endurance. The former was won for America by Glenn H. Curtiss in a biplane of his own design. This aviator on July 24 at Mineola, Long Island, had for a second time won the Scientific American trophy, making a flight of 24.047 miles in 52.30 minutes, at an average speed of 28.51 miles per hour. The machine employed was a biplane weighing 507.1 lbs., to which must be added the gasoline, oil and water, 33.1 lbs., and the weight of the aviator, etc., 176.3, making a total weight of 716.5 lbs. The highest speed attained was 47 miles per hour, and the time for the course 15 minutes, 50½ seconds. The Curtiss aeroplane carried a single passenger and was the lightest of all the machines in the competition. With the exception of Blériot XI., a monoplane designed for speed, it was the lightest of the machines shown at the meet. Second place in the Bennett cup race was taken by Mr. Blériot with Blériot XII., a larger machine than that used for his cross-Channel trip. This monoplane was fitted with an E. N. V. motor and had a total weight of 1355.8 lbs. Blériot's time was 15 minutes, 56½ seconds, and his speed 42.5 miles per hour. H. Latham in an Antoinette aeroplane and E. Lefebvre in a Wright machine also qualified in this competition, being placed in the order named. For the Grand Prix of Champagne a number of machines were entered and made creditable performances. The winner was M. H. Farman in a Farman aeroplane with a Gnome motor, the entire machine with its pilot weighing 1212.5 lbs. The distance was 111.88 miles, covered in 3 hours, 4 minutes, 55½ seconds. The motor of this aeroplane was very light, being of the revolving-cylinder-air-cooled type. In the 10-kilometre speed competition, first place and a new record were won by M. Blériot with his monoplane, making the distance (6.21 miles) in 7 minutes, 48 seconds, or at a rate of 49.1 miles per hour. Second in point of speed came Curtiss. Some surprise, especially in the United States, was expressed that the Wright machines, of which those piloted by MM. P. Tissandier, E. Lefebvre, and Comte de Lambert were conspicuous in the competitions, did not win the highest prizes. This was explained by the fact that in most of the competitions speed rather than mechanical efficiency counted. Thus the Wright machines showed much less difference when operated by different pilots and were first from the point of the useful load carried. The two propellers revolved with a relatively slow motion, making for efficiency, and the motors have been developed to a point of assured reliability.

The Rheims contests were marked by an en-

tire absence of untoward circumstances and were in every way most successful, so that serious accidents in the early autumn and through the final months of the year came with shocking emphasis. The first of these was the death of M. Lefebvre at Juvisy, while testing a new Wright biplane on September 7. On September 22 at Boulogne Captain Ferber, whose name had long been associated with the development of aeronautics in France, was killed when his machine was capsized by striking an obstacle in the course of a low flight.

SANTOS-DUMONT'S NEW AÉROPLANE. During the autumn there appeared one of the most interesting aeroplanes of the year, the "Demoiselle" of Santos-Dumont, the pioneer worker with the dirigible balloon. This was a monoplane weighing but 260 pounds without the pilot and having a surface of planes amounting to 97 square feet with a spread of 16.4 feet. Comparing this weight with the 560 lbs. of the Curtiss machine and the 882 lbs. of the Wright aeroplane, with 215 and 538 square feet of surface of supporting planes respectively, the significance of this new aeroplane may be appreciated. With this machine Santos-Dumont accomplished some fast and interesting flights, covering the distance from St. Cyr to Buc, 8 kilometres (4.97 miles) in 12 minutes on September 13, and four days later in a cross-country flight he accomplished an even longer trip. By many authorities this interesting little machine was regarded as the most striking development of the year, as the reduction in size of a practical flying machine was a marked step forward.

Popular interest was aroused in America by a flight made by Wilbur Wright in connection with the Hudson-Fulton Celebration in New York, in the course of which he flew from Governor's Island over the Hudson River as far as Grant's Tomb and return. Glenn H. Curtiss also exhibited his aeroplane in flight at Governor's Island. Besides being ocular demonstrations of the aeroplane, the exhibition possessed but little importance aside from its public features, and attention next centred on a German exhibition held at Potsdam. Here Orville Wright was present and made a number of successful flights in the presence of the Emperor, and one with the Crown Prince as a passenger. At this time he made a record for height, attaining a distance estimated at 1600 feet or over, as well as one for sustained flight with a passenger, being in the air 1 hour, 35 minutes. High flying now began to attract more attention and the Count de Lambert in the course of a 30-mile flight over Paris sailed above the Eiffel Tower on October 18, at a distance of 1300 feet above the ground. M. Paulhan also made some interesting high flights. On November 3 occurred an important flight by M. Farman, when at Mourmelon-le-Grand he was in continuous flight for 4 hours, 17 minutes, 53 seconds, covering a distance of 144 miles. On December 30, Leon Delagrangé in a Blériot monoplane made a record of 124 miles in 2 hours and 32 minutes.

DIRIGIBLE BALLOONS. Improvement in speed and endurance rather than radical innovations in design characterized the progress of the airship during 1909. Count Zeppelin's work of previous years culminated in his powerful dirigible, "Zeppelin III.," with which he made a record flight from Friedrichshafen to Berlin and return, a total distance of 800 miles. This was

accomplished between August 27 and September 2, the trip being made with five stops, and the arrival at Berlin being witnessed by the Emperor. Several balloons were constructed during the year and various trials were held for the government, particularly with a view to ascertaining whether the balloon could rise beyond the range of rifle and artillery fire. "Zeppelin I." was taken by the army and was employed frequently in practice ascents. The Zeppelin airships, it will be recalled, are of huge size, with a number of gas compartments arranged in a rigid frame. They can carry a considerable crew, often as many as 26, and supply of provisions and are in every way suited for long-distance traveling. As in the case of the aeroplane, an increased independence from the effects of adverse weather conditions was enjoyed. Good speed was maintained, and in a trip from Friedrichshafen to Munich 100 miles were made in 4 1/2 hours, while a flight of 150 miles was made in 4 hours. The aeronautical division of the German army continued its experiments with the Gross airship, which is about half the size of the Zeppelin, having a steel stiffening frame but not the elaborate car and machinery of the larger airship. It furnished a model for other airships which were added to the army or were under construction during the year. The success which was expected of the Parseval II. airship accepted by the government in 1908 was attained and a Parseval III. was completed in 1909. The Parseval has no rigid frame and may be packed when deflated in an ordinary wagon; thus making it especially serviceable for military purposes. However, it has been deemed equally available for general transportation purposes, and in December an airship of this type was ordered for delivery in the following May by the Munich Aeronautical Company, a concern with a capital of \$100,000. The contract price was \$70,000 and the airship is to be delivered about May 1, when tours from Munich to Walchen Lake in Upper Bavaria will be undertaken. The German army in the course of its experiments and manœuvres also employed the Gross airship, a dirigible of the semi-rigid type, added to the aeronautical section in the previous year. In 1909 the German government had in operation the following airships: Zeppelin I. and II., Gross I. and II., and Parseval I. and II., in addition to two others in course of construction. Experiments with wireless telegraphy from airships were carried on, and the airships figured extensively in the military manœuvres of the year.

The activity of the French army with its dirigible balloons continued in 1909, and the fleet consisted of *Ville de Nancy*, *Ville de Paris*, *Lebaudy*, *Liberté*, and *Colonel Renard*, besides *La République*, destroyed on September 25 (see below). Several of these balloons participated in manœuvres, and the old *Lebaudy* underwent a test under what might be considered service conditions, being moored in the open air for ten days inflated and exposed to winds. This was to determine the feasibility of a non-rigid dirigible being able to land and make repairs in case of being harassed by an enemy. In practically all the large European nations dirigibles were in use and new balloons were being ordered, extensions of the balloon sections of the armies being general. Much was being done in secret and considerable sums for aeronautical maintenance

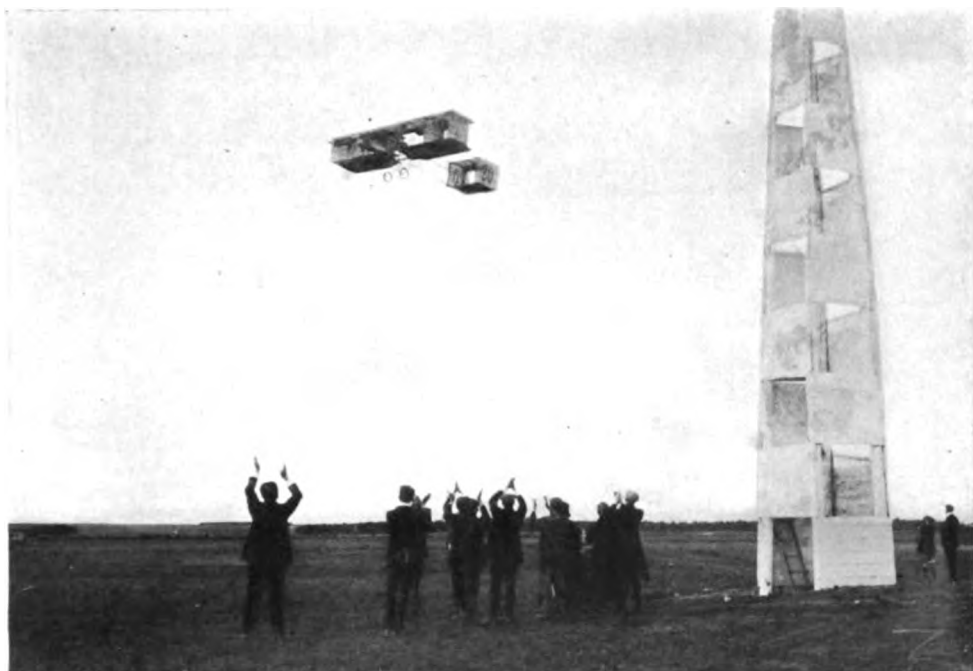
and experiment figured in the military budgets of all the European nations.

A serious accident occurred in the wreck of the French military airship *La République*, which occurred on September 25, and resulted in the death of the four occupants of the car, Captain Marechal, Lieutenant Chaure, M. Reau, and M. Vincenot. The accident occurred when the balloon was in the air at a height of 300 feet and was caused by the breaking off of one of the propeller blades, which tore through the gas envelope and caused the airship to fall. *La République* was an airship of the semi-rigid class with a gas capacity of 127,100 cubic feet. It had fixed and movable horizontal and vertical planes to assist in its control and was driven by an 85 h.-p. Panhard motor driving two propellers 8 1/2 feet in diameter.

There was held on June 25 at Indianapolis, under the auspices of the Indianapolis Aero Club, the National Distance Race and the Indiana Endurance Race. In the former, for a trophy offered by the Aero Club of America, there were six starters and the race was won by "University City," owned by John Berry and John McCullough of St. Louis, which covered 380 miles. Second place was won by "New York," which by rising to a high altitude and encountering stronger winds than below was able to make 357 miles. The course for all the balloons was almost directly south and the other balloons accomplished the following distances in their journeys: "St. Louis," 321 miles; "Indiana," 264; "Hoosier," 234 miles. The Indiana Endurance Race was won easily by "Indianapolis," which remained in the air 22 hours. The races were in many ways disappointing, as no new records were made and many of the competitors descended early, due in part to the poor quality of the gas used.

The rapid development of practical aeronautics brought up many problems of important general and particular interest. Accordingly an International Congress was summoned to discuss such questions as aerial law and the establishment of a standard glossary of aerial terms, and this met at Nancy in September, 1909. The novelty of the situation was as apparent as its importance, so that the recommendations of the Congress aroused considerable interest. The only parallel cases were those in maritime law and these in part served as models. It was recommended that "rules of the road" should apply to airships and that every aerial vessel should be registered and properly documented with passports for crew and passengers to facilitate identification. The atmospheric space above each country was to be considered as belonging to that country, while the idea of restricting aerial traffic to certain routes was not feasible, and instead each nation should be in a position to forbid landing at points where conditions of national security demanded such action. It was recommended that custom duties on foreign balloons should be abolished, but it was held that photographs taken by foreigners should be subject to inspection and possible confiscation. During the year a number of interesting papers dealing with the legal status of aerial navigation were prepared and the questions involved seemed to be of more than academic interest, as it was realized that conditions might soon arise to demand practical solutions.

AÉROPLANES. See AÉRONAUTICS.



Photograph by Underwood & Underwood, New York

**THE AVIATION CONTEST AT RHEIMS
PAULHAN PASSING THE TURNING POINT IN HIS VOISIN BI-PLANE**



Photograph by Edwin Levick, New York

THE ZEPPELIN AIRSHIP OVER FRANKFORT

AFGHANISTAN. A monarchy of Central Asia, having an estimated area of 225,000 square miles and an estimated population of 5,000,000. The Durrani are the dominant race, but more numerous are the Ghilgais, who number about 1,000,000. The capital is Kabul, with about 70,000 inhabitants; Herat has about 45,000 and Kandahar 35,000. The chief productive occupations of the people are agriculture and stock-raising. The products include cereals, lentils, fruits, and asafetida. These commodities, together with horses and other live-stock, wool, and hides, constitute the bulk of the exports, which also include a few manufactures, as silk and carpets. The leading imports are cotton goods, indigo and other dyeing materials, sugar, and Chinese tea. Commerce is chiefly with India and Bokhara. The trade with India in 1908-9 was valued at over £1,516,000, imports amounting to somewhat more than half of the total. In recent years Russian trade competition has been active. In 1906-7 imports from and exports to Asiatic Russia amounted to about £105,000 and £355,000 respectively. The government is loosely organized and feudal in character. At its head is the Ameer, a hereditary prince whose will theoretically is absolute. The Ameer in 1909 was Habibullah Khan, who succeeded his father, the famous Abdur Rahman Khan, October 3, 1901. The four provinces are administered by governors, under whom nobles dispense justice more or less arbitrarily. The Ameer sustains no foreign relations except through the British-Indian government, from which he receives an annual subsidy of 1,800,000 rupees. Other revenues, the amount of which cannot be determined, is derived mainly from taxes in kind, and their collection is attended with dishonesty and extortion. The total revenue has been roughly estimated at over 12,000,000 rupees.

Afghanistan maintains a standing army which includes 27,000 infantry, 7000 cavalry and a strong force of artillery, to which may be added a large force of irregulars, who are either retainers or more important subjects of local chiefs, numbering about 25,000 mounted and a smaller quota of foot, enabling the army to be expanded and turned out on a war footing of 80,000 horse and 60,000 foot. Considerable progress was made in supplying modern rifles and field guns as well as with drill and organization, so that the army was being placed on a more effective footing. Service in the army is obligatory, but in practice only one in every seven is liable for conscription. At Kabul are maintained efficient ordnance factories and an arsenal. There are in the army 360 guns and it was believed that there were available sufficient breech-loading rifles to equip 100,000 infantry. The native officers of the army are, however, not considered competent to act in any serious service involving the training or leading of troops.

The most important event in the history of Afghanistan during the last few years was the signing of the Anglo-Russian convention on August 31, 1907, whereby Great Britain declared that it would not annex or occupy any part of Afghanistan territory and had no intention of changing the political status of the country, and Russia recognized Afghanistan as outside her sphere of influence and declared that she would conduct all her political relations with it through the British government.

During the month of March, 1909, it was

reported that a plot had been formed against the Ameer and the heir apparent, said to have been inspired by one of the wives of the late Ameer, whose son was at one time talked of as successor. Many arrests were reported at Jellalabad and Kabul, and it was said that a number of prisoners were blown from the guns. The plot was thought to have some relation to a reform movement started by an Indian at the head of the Afghanistan educational department for the purpose of securing the establishment of constitutional government.

AFRICA. See ABYSSINIA, EGYPT, LIBERIA, MOROCCO, and other countries; also EXPLORATION and SOUTH AFRICAN UNION.

AFRICAN METHODIST EPISCOPAL CHURCH. See COLORED METHODISTS.

AFRICAN METHODIST EPISCOPAL ZION CHURCH. See COLORED METHODISTS.

AGRICULTURAL EDUCATION. In 1909, as in years closely preceding it, much attention was given by college and school authorities to the promotion of agricultural education. This was true, not only in the United States, but in many foreign countries. At the First Convention of the Pan-American Scientific Congress, held at Santiago, Chile, December 25, 1908, to January 5, 1909, the programme of the section on Agronomy and Zootechnics was largely taken up with discussions on agricultural education, and the resolutions presented by this section to the congress included recommendations for agricultural instruction of all grades from the most practical elementary instruction to scientific instruction in college courses and in normal schools. The Commission on Country Life (see under AGRICULTURE) recommended "a new kind of education adapted to the real needs of the farming people," which shall include agriculture in the regular public school work, special agricultural schools, and a well-developed plan of extension teaching conducted by the agricultural colleges.

In Canada much attention was given to agricultural education and particularly to the development of courses for the training of teachers at Macdonald College, Ste. Anne de Bellevue, at the Ontario Agricultural College, Guelph, and at the Manitoba Agricultural College, Winnipeg. In Ontario the important experiment was started of appointing six agricultural college graduates as teachers in six high schools, these teachers to serve also as advisers to the farmers in the vicinity of their respective schools. A College of Agriculture was established in connection with the newly established University of Saskatchewan, at Saskatoon, and a four-year course in forestry was introduced at the University of New Brunswick at Fredericton. Traveling schools of stock-judging were conducted in the Province of Alberta by transporting 50 head of improved live-stock from place to place, housing them in local shelters for periods of from one to two weeks, and using them during that time for demonstration purposes in connection with courses of instruction on live-stock.

In England the University of Manchester established a three-year course in agriculture leading to a degree in science. The Board of Agriculture and Fisheries issued a report giving its total expenditures for agricultural education in 1908 as \$58,685, an increase of \$2668

over the previous year. One of the secretaries of the board pointed out that the facilities for instruction in agriculture in England were far from adequate, and called attention to the remarkable fact that this condition was more pronounced in the agricultural counties than in the manufacturing counties. Instruction on rural subjects in the public elementary schools in England is fostered by special grants coming from the Board of Education and it is reported that last year gardening was taught in the schools of every county except two.

In Ireland the promotion of agricultural instruction was conducted under the auspices of the Department of Agriculture and Technical Instruction and much attention was given, not only to instruction in the Royal College of Science, Dublin, Albert Agricultural College, Glasnevin, and other agricultural stations and institutions, but also to special instruction for the preparation of teachers, and to itinerant instruction in all parts of the island.

Germany, following the lead of Italy, began giving instruction in agriculture to subalterns and privates in the German army at Augsburg in 1907, and by 1909 was giving such instruction in 14 other places.

UNITED STATES OFFICE OF EXPERIMENT STATIONS. The Office of Experiment Stations continued to act as the general agency of the United States Department of Agriculture to deal with the various colleges, schools, and extension departments in the United States concerning the promotion of agricultural education. A larger appropriation for this work became available in 1909, and two additional specialists were employed, one in agricultural education and one in farmers' institute work. The work included as formerly (1) the preparation of editorials and abstracts of agricultural education literature for the *Experiment Station Record*; (2) the compilation of statistics of agricultural colleges, experiment stations, and farmers' institutes in the United States; (3) the compilation of directories, organization lists, and address lists of agricultural colleges, schools, experiment stations, extension departments, and of the teachers and other workers in these institutions and in farmers' institutes; (4) the preparation of courses of study and laboratory exercises for agricultural colleges and schools, bibliographies of agricultural literature, lecture syllabi with lantern slides, and annual reviews of progress in agricultural education; and (5) the aiding of educational institutions, associations, and workers, through correspondence, conferences, and public addresses.

AGRICULTURAL COLLEGES. During 1909 the agricultural colleges gave instruction in agriculture to more students than in any previous year, and also did more effective work along other lines. Several of the biennial State appropriations for these institutions approached or passed the half-million mark, notably in Washington (\$487,000), Pennsylvania (\$526,000), and Kansas (\$671,000). The growth of the agricultural colleges was also indicated by the number and character of college buildings completed during the year. Among these were the following agricultural buildings: Georgia, \$100,000; Iowa, \$400,000; Maine, \$50,000; Michigan, \$175,000; Missouri, \$100,000; and Montana, \$80,000. Wisconsin completed a \$75,000 live-stock pavilion, and California

started work on a \$200,000 agricultural building. The aggregate value of permanent funds and equipment of these institutions in 1909 was \$111,882,687; their income, \$18,082,853; and the value of additions to their permanent endowment and equipment, \$6,055,147. The total number of students in four-year courses in agriculture was 6822, and, including short-course students given below, 15,940; as compared with a total of less than 14,000 in 1908.

The number and variety of short courses offered by the agricultural colleges was greater than ever before, and there was also a larger enrollment of students at these courses as shown by the following summary of attendance: Agriculture, 6236; horticulture, 233; forestry, 81; dairying, 610; teachers' courses in agriculture, 1958; total, 9118. In 1908 the total was 7293, or 1825 less than in 1909.

Departments of agricultural education or teachers' colleges were established in connection with the agricultural colleges in Alabama, Arkansas, California, North Dakota, Pennsylvania, and Vermont. Definite provision for the training of teachers of agriculture or for aiding them through extension departments, or special publications, is now made by agricultural colleges in 27 States. Summer schools for white teachers were held in connection with the agricultural colleges in 12 States and for negroes in 6 States. Associations for promoting the interest and preparation of teachers of agriculture were formed in Illinois and Nebraska.

EDUCATIONAL EXTENSION WORK IN AGRICULTURE. The extension features of college work had developed to such an extent that at the annual convention of the Association of American Agricultural Colleges and Experiment Stations held in Portland, Oregon, August 18-20, 1909, the constitution of the Association was so amended as to permit the organization of a section on extension work composed of representatives of extension departments in the institutions represented in the Association. The organization of such a section was effected before adjournment. The Association also favored a Federal appropriation to the States and to the United States Department of Agriculture for extension work, the franking privilege for extension publications, and the organization of separate extension departments by the agricultural colleges. Such departments were organized in 1909 in Georgia, Kansas, Massachusetts, Michigan, and North Carolina.

Farmers' institute organizations were maintained in 1909 in every State and Territory. Reports from 47 States and Territories showed that there were held 4926 regular institutes, consisting of 15,210 half-day sessions, with a total attendance of 2,196,568, and including railroad specials, round-up institutes, and other special forms of institute activity, of almost three millions (2,907,000). The State appropriations for these institutes amounted to \$328,000, an increase of \$12,500 over 1908. Eight normal institutes for the instruction of farmers' institute teachers were held in three States, with an attendance of 1000 institute lecturers. There were 156 sessions of round-up institutes, with an attendance of 39,200; 181 sessions of independent institutes, with an attendance of 380,500; 142 sessions of institutes for women; and many special-subject institutes. Sixteen



THE NEW AGRICULTURAL BUILDING
IOWA STATE COLLEGE
 Ames, Iowa



GEORGIA STATE COLLEGE OF AGRICULTURE
 Athens, Georgia

AGRICULTURAL EDUCATION—NEW BUILDINGS

States reported boys' and girls' meetings of various kinds.

Fourteen States ran railroad specials and reported an attendance of over 159,000. Numerous other railroad specials were conducted by State boards of agriculture and by the agricultural colleges independent of the institute organizations. In many cases the railroad companies not only furnished trains to the institute directors free of charge, but also provided board and lodging for the instruction force. Movable schools of agriculture were successful wherever tried and were attended by over 2500 persons. The instruction was given by skilled teachers to classes of adults regularly organized, and the sessions continued from one to three weeks in a locality.

SECONDARY AND ELEMENTARY SCHOOLS. Secondary courses in agriculture were started in connection with the agricultural colleges in Colorado, Montana, and Oregon. Two district agricultural high schools were provided for in Idaho, likewise four in Arkansas with a total appropriation of \$160,000. Subsidies were voted to encourage the teaching of agriculture and domestic science in public high schools as follows: In Texas, \$32,000; in Minnesota, 25,000 for ten schools; and in Louisiana \$500 to each school approved by the State Board of Education. In Massachusetts, the Smith Agricultural School and Northampton School of Technology opened at Northampton and smaller agricultural high schools at Petersham and Montague. The five agricultural schools for Oklahoma were located respectively at Warner, Tishomingo, Broken Arrow, Lawton, and Helena. A sixth school, known as Panhandle Agricultural Institute, was established at Goodwell. A county agricultural school, with a new \$25,000 granite building, was opened at Sparks' Station, Maryland.

The introduction of agriculture into the elementary schools was promoted in many States. In this work both the colleges of agriculture and the normal schools participated. In Texas the legislature appropriated \$2000 a year for two years to each of the three State normal schools for departments of agriculture, manual training, and domestic science, and provided also for the introduction of teachers' courses in elementary agriculture in the summer sessions of these schools, as well as in those of the College of Industrial Arts for Girls, the Agricultural Mechanical College, and at the State University. For the support of the summer school work \$3000 annually was appropriated.

Boys' and girls' clubs proved to be very effective agencies for interesting young people in agriculture and home-making, and were reported last year from 29 States, with a total membership of upwards of 150,000.

TEXT-BOOKS AND MANUALS. Many important text-books, manuals and works of reference were published in 1908-9. Among these the three following were unique in the field of agricultural education, in that they were among the first to discuss the philosophy and pedagogy of agricultural education:

Education for Efficiency, by E. Davenport. A discussion of the problem of universal education with special reference to academic ideals and methods and to the introduction of agriculture into secondary and elementary schools.

The Training of Farmers, by L. H. Bailey,

a discussion of the problem and the means of training farmers.

Agricultural Instruction and Its Methods (L'Enseignement Agricole et ses Méthodes), by P. DeVuyt, Brussels, 1909. A manual for teachers of agriculture and students of education, embodying a systematic statement of the different agencies for agricultural education in the principal countries of Europe and North America, and a discussion of methods of teaching and other means of disseminating agricultural information.

Among the books suitable for use in college courses in agriculture, the following are worthy of mention: *The American Apple Orchard*, by F. A. Waugh, 1908; *The Science and Practice of Cheese Making*, by L. L. Van Slyke and C. A. Publow, 1909; *Southern Crops*, edited by G. F. Hunnicutt, 1909; *The Business of Dairying*, by C. B. Lane, 1909; *The Farm Dairy*, by H. B. Gurler, 1908; *Farm Stock*, by C. W. Burkett, 1909; *Gardening in California, Landscape and Flower*, by J. McLaren, 1909; *The Horse Book*, by J. H. S. Johnstone, 1908; *Practical Irrigation: Its Value and Cost*, by A. J. Bowie, 1908; *Irrigated Lands of United States, Canada, and Mexico* by C. R. Price, 1908; *Farmers' Cyclopedia of Live Stock*, by E. V. Wilcox and C. B. Smith, 1908; *Mushrooms, Edible and Otherwise*, by M. E. Hard, 1908; *First Principles of Soil Fertility*, by A. Vivian, 1908; *Progressive Poultry Culture*, by A. A. Brigham, 1908; *Southern Poultry Guide, or Forty Years with Poultry*, by C. Husselman, 1908; *National Standard Squab Book*, by E. C. Rice, 1908; *Breeding for Squabs*, by F. A. Sotter, 1908; *North American Trees*, by N. L. Britton and J. A. Shafer, 1908; *Ventilation for Dwellings, Rural Schools, and Stables*, by F. H. King, 1908; *Wheat Fields and Markets of the World*, by R. E. Smith, 1908; *The Book of Wheat*, by P. T. Dondlinger, 1908.

The leading secondary and elementary text-books of agriculture, nature study and school gardening were the following: *Elements of Agriculture*, by G. F. Warren, 1909 (for secondary schools); *Agriculture for Common Schools*, by M. L. Fisher and F. A. Cotton, 1909; *Elementary Agriculture of Tennessee*, by K. L. Hatch, J. A. Haselwood, and C. A. Keffer, 1909; *Practical Agriculture*, by J. W. Wilkinson, 1909; *The Garden Book for Young People*, by Alice Lounsberry, 1908; *The School Garden Book*, by C. M. Wood and P. Emerson, 1909; *Nature Study*, by F. L. Holtz, 1908; *Nature Study by Grades*, by H. H. Cummings, 1908; *Practical Nature Study and Elementary Agriculture*, by J. M. and J. G. Coulter and Alice J. Patterson, 1909; *Notes on Drainage*, by E. R. Jones, 1908.

AGRICULTURAL EXPERIMENT STATIONS. Efforts to bring the results of experimental work in agriculture more directly home to the farmers have notably increased. Additional substations to study local problems were established in Arizona, Arkansas, Idaho, and South Carolina, and those already existing in many other States were given increased support. In Wisconsin the station has undertaken demonstration work on the farm of a State insane asylum, and similar arrangements have been made in Ohio and other States on the farms of various public institutions. In Kansas and Missouri provision was made for county

demonstration farms under station supervision. The dissemination of information through agricultural experimenters' unions made up wholly or partially of former agricultural students was continued in Nebraska, New York, Wisconsin and Rhode Island. The Massachusetts, Michigan, New Hampshire, Cornell, Oregon, Virginia and Washington stations were added to those issuing popular circulars or bulletins. The North Dakota and Wisconsin stations began to issue press bulletins and the Connecticut State Station distributed "post-card bulletins." This movement is to a large extent mingled with the general movement for the establishment of extension departments in the agricultural colleges. See AGRICULTURAL EDUCATION.

Under existing circumstances the Federal funds given to the stations are very apt to become involved in extension work, and the Office of Experiment Stations has found it desirable to rule definitely against the use of these funds for extension purposes. On the other hand, the strictly scientific work of the stations has been greatly expanded under the operations of the Act of Congress of March 16, 1906 (Adams Act). This is illustrated by the fact that more than sixty projects in the breeding of plants and animals have been undertaken under that Act. These include some large projects dealing with underlying principles or methods, and systematic studies of phenomena connected with efforts to secure improvement of breeds of types, as well as investigations more definitely aimed to secure varietal improvements. Inasmuch as many of the Adams fund projects require long-continued investigations, it will require much patience on the part of both investigators and the public to persevere until the desired results are accomplished.

A better medium than the ordinary station bulletin or report for the publication of the scientific work of the American stations has long been desired. The present mixture of scientific and popular material, compilations, inspection tests, and analyses becomes more confusing and unsatisfactory to farmers and scientists alike as the mass of station publications increases. The practice is rapidly growing of publishing accounts of the scientific work of our stations in a great variety of scientific journals at home and abroad. Such scrappy and scattered publication gives a very inadequate record of what the stations are doing in advancing knowledge and produces very little impression of the real services of our stations as public scientific institutions. The Association of American Agricultural Colleges and Experiment Stations has taken this matter up and after careful consideration through committees has decided to ask Congress to endow a journal of agricultural research, to contain original technical reports of the scientific investigations of the stations. The plan involves coöperation between the Department of Agriculture and the Association and the management of the journal by a board of experts designated by the Association and approved by the Secretary of Agriculture.

The annual number of changes in the personnel of the stations continues to be too large for the best interests of their work. Returns for 1909 show that 150 members of the scientific staff resigned or retired during the year. Of these, 3 were directors, 43 heads of departments or in charge of special lines of

work, and the rest assistants of various grades. In many cases the change was from one station to another, but a considerable number dropped out of station work. Two hundred and sixty-five new appointments were made, over 200 being men new to station work. The total number of persons engaged in scientific work in our stations is 1234, as compared with 765 five years ago. At present 120 of the scientific station workers hold the degree of doctor of philosophy, 45 have degrees in veterinary medicine, and nearly 300 have the master's degree.

The American stations have lost one of their early leaders through the death of Dr. Samuel William Johnson (q. v.), former director of the Connecticut Station. Dr. E. W. Hilgard, director of the California Station for thirty years, who became emeritus several years ago, retired in 1909, under the Carnegie Foundation, at the age of 76. He was also a leader in the national movement for experiment stations. His reputation as a scientific man rests especially on his extensive and long-continued studies of the soils of arid regions, and his work for the Tenth Census on the soils of the cotton-growing States. He summed up his life's work in a book on soils, published in 1906.

Agricultural experiment stations, maintained in whole or in part by Federal funds, now exist in every State and Territory, including Alaska, Hawaii, Porto Rico, and Guam. The total amount expended for this purpose during the fiscal year ended June 30, 1908, was \$2,800,047.29, of which \$1,152,000 was received from the national government. The remainder, \$1,648,047.29, came from the following sources: State governments, \$947,558.67; individuals and communities, \$22,835.30; fees for analyses of fertilizers, etc., \$186,159.70; sales of farm products, \$210,391.28; miscellaneous, \$281,102.34. In addition to this the Office of Experiment Stations had an appropriation of \$314,620 for the past fiscal year, including \$26,000 each for the Alaska, Hawaii, and Porto Rico experiment stations, \$5000 for the Guam experiment station, \$7000 for nutrition investigations, \$150,000 for irrigation and drainage investigations, and \$10,000 for farmers' institutes and agricultural schools.

In Alabama, Connecticut, Hawaii, Louisiana, Missouri, New Jersey, New York, and North Carolina, separate stations are maintained wholly or partly by State funds, and in a number of States substations are maintained. Excluding substations, the total number of stations in the United States is 61, of which 55 receive Federal funds.

The Office of Experiment Stations has completed the twentieth volume of the *Experiment Station Record*. The 20 volumes contain references to 71,650 articles in the world's literature of agricultural science. The publications of the American experiment stations abstracted in the *Record* number 7750, together with 3055 publications of the United States Department of Agriculture. The amount of literature to be reviewed in this journal has become so great that hereafter two volumes of the *Record* will be issued annually.

The office is also disseminating throughout the United States the practical results obtained at the several State experiment stations, through a series of farmers' bulletins under the general title of "Experiment Station Work,"

and the demand for these is so great that 900,000 copies were printed in 1909.

An exhibit of the work of the Office was made at the Alaska-Yukon Exposition at Seattle. For other work of the Office see AGRICULTURAL EDUCATION, FOOD AND NUTRITION, DRAINAGE and IRRIGATION.

In Alaska the new station at Fairbanks is being actively developed and 60 acres have been brought under cultivation. At the Rampart Station, 65° 30' north latitude, 57 out of 65 varieties of grain fully matured in 1908, and practically every variety of spring grain ripened in 1909. Winter rye and wheat matured when the snow was not blown from the plats. The herd of Galloway cattle on Kodiak Island wintered satisfactorily with no shelter except an open shed, being fed exclusively on hay and silage from native grasses. The crossing of wild and cultivated strawberries at Sitka is giving very promising results.

The Hawaii Station has been very successful in growing Sea Island cotton and considerable areas of this crop are being planted. Experiments in tapping and coagulating rubber have been highly satisfactory and the profitability of the rubber industry in Hawaii seems assured. Better varieties of rice have been developed and the yield greatly increased. Shipments of fresh fruit, particularly pineapples, are much larger.

In Porto Rico the station work has practically revolutionized the pineapple industry. Improved sugar cane seedlings introduced by the station are in great demand. High grade coffees from Arabia and Java are being introduced. Improved breeds of cattle, swine, sheep, goats, horses, and poultry are also being brought in.

The newly established station on the island of Guam has been equipped with land and small buildings. Maize, Kafir corn, Guinea grass and other forage plants are being introduced, preliminary to experiments with live-stock. Pineapples, bananas and avocados from Hawaii have been planted and other economic plants have been brought from Java.

The Chinese government has undertaken to develop agricultural instruction and research in Manchuria, and American agricultural experts have been made official advisers for this purpose. A director of agricultural instruction and experimental work has been appointed by the Mexican government. In Spain experimental work in agriculture has been begun near Seville and at Madrid and Motril under government auspices. An elaborate set of buildings for the sugar experiment station at Pekalongan, West Java, has been completed. A station has been established near Tucuman, Argentina. The system of Canadian stations has been enlarged by the establishment of experimental farms at Charlottetown, Prince Edward Island; Lacombe, Central Alberta; Lethbridge, Southern Alberta. In 1908 nearly 40,000 farmers in Canada cooperated with the stations in tests of new varieties of grain and potatoes. See UNITED STATES, paragraph on *Department of Agriculture*.

AGRICULTURE. The year 1909 was the most prosperous agriculturally of all years. The spring was late and the season was quite dry over large sections, but these conditions did not affect the total yield of staple crops

as greatly as was anticipated. The year was bountiful with most crops and prices were high. As a result the total value far exceeds that of all other years, amounting for crops and animal products to \$8,760,000,000. This is a gain of \$869,000,000 over the preceding year, and is practically double the value of ten years ago. Such gains demonstrate the remarkable development of the agricultural industry in the United States within a decade, and the part it now contributes to national wealth and business. According to a census of the *American Agriculturist*, completed at the close of 1909, the total number of farms in the United States has reached 6,730,000, a gain of nearly a million in the decade. In the Western States the increase has been 100 per cent. The value of these farms and their stock and equipment is placed at \$29,640,000,000, a ten-year increase of 44 per cent.

These figures are almost inconceivable without some means of comparison. The value of all crop products for the year 1909, estimated at prices on the farms, would make a half payment on the value of all the steam railroads in the United States, according to the valuation of 1904. The cereal crops alone, estimated as worth \$3,000,000,000 to the farmer, would be sufficient to pay for all the machinery, tools, and implements of the entire manufacturing industry in this country. Even the corn crop, which leads all other crops in value, nearly equals the value of the clothing and personal adornments of 76,000,000 people, according to the census of 1900; the gold and silver coin and bullion of the United States are not of greater value. This corn crop, as the Secretary of Agriculture says, "came up from the soil and out of the air in 120 days—\$14,000,000 a day for one crop, nearly enough for two *Dreadnoughts* daily for peace or war."

Cotton has now become the second crop in value, being followed in succession by wheat, hay, and oats. Compared with the average of the preceding five years, the year marked an increase in the yield of all the staple crops, except cotton, flaxseed, hops, and cane sugar. It was the highest in production of potatoes, tobacco, beet sugar, all sugar, and rice, and next to the highest in production of corn, oats, and all cereals; the wheat crop was the third largest harvested. Without exception every crop was worth more to the farmer than the five-year average. The value has not previously been equaled in the case of corn, cotton, wheat, oats, all cereals, potatoes, beet sugar, all sugar, flaxseed, and rice; the year was next to the highest for hay, cane sugar, and hops; and the value of barley was the third highest for that crop.

Compared with 1908, the year's gains in value of farm products were found all along the line, exceptions being barley, buckwheat, rye, and milk. The increase for cotton (seed and lint) was \$208,000,000, for wheat \$107,000,000, for corn \$105,000,000, for hay \$29,000,000, for oats \$22,000,000, for tobacco \$18,000,000, and for potatoes \$15,000,000. There were substantial gains in value of dairy and poultry products, and of animals sold and slaughtered. The price of butter has not been so high in many years, and the same is true of eggs and dressed poultry. The high prices of fresh meats and their products have become of such concern to nearly every family that an investigation into their

cause, their relation to agricultural production, and to the prices received by the farmers and stock raisers was conducted by the Department of Agriculture. (See FOOD AND NUTRITION.) This investigation failed to show that the farmer had received a share of the higher beef prices with regard to the raw animal. The slight increase he has received for his cattle is more than compensated by the higher price of corn. "The farmer gets some return for the high-priced corn that he feeds to his steers, but not a return equal to 60 cents a bushel, which is the price for the last two years. As for the unfed steer, it does not participate in the upward movement of prices in its farm value," which is barely that of 9 to 14 years ago. In the case of hogs the investigation showed that the farmer has fully participated in the rising prices, although it is apparent that during the last three years the price of corn has been too high relatively for the price of hogs.

It is generally recognized by those familiar with the subject that the beef supply of the country is not keeping pace with the growing demand. The heavy influx of settlers into the range territory are not handling cattle in any large way. The increasing demand for corn and wheat, with the consequent high prices, has induced stock feeders to plow up pasture lands and put in grain crops, which bring profitable cash prices. This has decreased the number of cattle marketed from the Middle West. The Department of Agriculture estimates the decline in visible supply of cattle the country over at 2,100,000 head. In view of the present situation the Beef Producers' Association of America has been organized by the national beef breed associations, for the purpose of educating the farmers into an understanding of the profits to be made in breeding and feeding cattle, and the consumer into a better knowledge of the beef carcass and its utilization.

The value of agricultural exports for 1909 was \$903,000,000. This was \$151,000,000 below the highest record, in 1907, and \$114,000,000 below the next highest, in 1908. Compared with 1908, the prominent decreases were \$11,500,000 for live animals, \$26,000,000 for packing-house products, \$20,000,000 for cotton, \$55,000,000 for grain and grain products, and \$3,800,000 for tobacco. The importations of agricultural products, on the other hand, were never so high in value as in 1909, amounting to \$637,000,000. The principal gains were in silk, wool, packing-house products (mostly hides), coffee, and sugar. The net balance of foreign trade in agricultural products in favor of this country was \$266,000,000, the lowest amount since 1896. The balance of trade in products other than agricultural was \$46,000,000 in favor of the United States.

The crop season in England was remarkable for the amount of rain and the extremely low temperature. The wheat crop was above the average, but was harvested with difficulty. The potato crop was considerably affected, but other root crops less so. In Canada the wheat yield was a bumper crop—168,386,000 bushels, or over 43,000,000 bushels more than the previous year. There were also material gains in the leading grain crops, due to the extension of the area and to good growing conditions during the season. The world's wheat harvest for

1909 is estimated in Liverpool at 3,346,968,000 bushels, which is an increase of 9½ per cent. over the production of 1908, and the highest record for total yield. The whole season in Argentina was one of the most protracted droughts ever experienced in that country. This led to a great falling off in the area of wheat sown, and to great losses of cattle and sheep. In many districts 20 per cent. of the sheep and 10 per cent. of the cattle are reported to have been lost. The spring and early summer were unfavorable for the growth of grass in Germany, and the hay crop was quite short. Argentina has in the past been looked to for supplying such shortage. The hop crop in Bohemia is estimated at about 7,716,100 pounds, or less than one-fourth of the 1908 crop, which was an unusually large one. The failure was due to cold, wet weather. The coffee crop of Brazil is reported as extraordinarily large, being estimated at 11,000,000 bags. Some half million bags were carried over from 1908, and the surplus for 1909 is placed at fully 2,000,000 bags.

The year was satisfactory to the wool-growers of Australia, although the outlook was unpromising when the season opened. Australia exported 582,016,428 pounds of wool during the year, and New Zealand 174,573,735 pounds, the total being an increase of 230,000 bales over the preceding year. The wool clip of Victoria for the season was 68,930,200 pounds, a decrease of about 10,000,000 pounds as compared with the previous year. On account of prevalence of foot-and-mouth disease in Argentina, the British ports have been closed against cattle and sheep from that country, even for slaughter. The disease is reported to have been practically stamped out, but it is spreading alarmingly in Brazil in the provinces bordering on Argentina. Considerable interest has lately been displayed by cattle-breeders in Brazil in the improvement of their stock. Shows have been held in agricultural centres, and the importation of good animals for breeding purposes is being encouraged by the government through the remission of the import duty. Meat has been added to the diet of the Japanese army, and a commission has been appointed by the Japanese Department of Agriculture to visit foreign countries for the purpose of gathering information to serve as a basis for the promotion of stock-raising in Japan. In Queensland a syndicate has been formed to float a company with a nominal capital of half a million dollars to take up some 700 square miles of land suitable for horse-breeding, with a view to supplying remounts for the army. For a long time the Australian horse has been much used in India for remount purposes. Six hundred Queensland horses were last year secured for use by the army in the Philippines, where they are reported to have given great satisfaction.

The government of Brazil is taking every available means to develop wheat growing in that country, where it is said to have once been so successful that wheat was exported. Under authority granted by the last Congress, subsidies for a period of five years are being offered to syndicates organized for wheat growing, and also for the establishment of flour mills for milling wheat grown by these syndicates. A bounty of \$6000 a year for five years is offered to syndicates which combine to establish experiment stations for the study of wheat growing, the

control of enemies, etc. There are also provisions for the free importation of tools, implements, and machinery for wheat growing and milling, a reduction of freight rates on wheat and flour produced in the country, and preference for such products in granting government contracts.

Experiments in dry farming on the American plan are to be undertaken in Australia. Considerable quantities of grains which have proved adapted to dry lands in the United States have been secured for experimental planting and distribution; and information in regard to American methods has been collected. There are thought to be large areas in that country adapted to dry-land agriculture.

The new United States tariff permits the importation, duty free, of all articles grown or produced in the Philippine Islands which do not contain foreign materials to the value of more than 20 per cent. of the total value. Rice is excepted from this new provision, and the free importation of sugar is restricted to 300,000 gross tons in each fiscal year, and of tobacco to 300,000 pounds of wrapper tobacco, 1,000,000 pounds of filler tobacco, and 150,000,000 cigars.

The formation of a stock company, capitalized at \$1,000,000, is on foot in Germany, to manufacture mowing machines and reapers to take the place of those now supplied by the United States. The value of the imports of these and other agricultural implements from the United States amounted in 1908 to over \$2,000,000.

A significant feature of the year was the attention given in published articles and addresses to the problem of the future food supply in its relation to our agriculture. Perhaps the widest publicity was given to President James J. Hill's address before the Bankers' Association, enlarged and published in *The World's Work*. In this Mr. Hill set forth in striking terms the growth of our population and the present limits of wheat production, and predicted a shortage of no less than 400,000,000 bushels by the middle of the present century unless radical improvements in the prevailing methods of farming are speedily begun. The growth of population in the United States from 1880 to 1908, he pointed out, was 74 per cent., while the increase in production of wheat for that period was only 41 per cent.; i. e., "the home demand for wheat has grown 80 per cent. faster than the supply." The low average yield for the whole country (13.88 bushels per acre) was used as an argument for more intelligent, efficient and productive methods, and for conserving the fertility of the soil. The practical instruction of the farmer and his sons, and the promotion of agriculture and farm life were urged in vigorous terms. The simple principles laid down for improvement were that (1) the farmer must cultivate no more land than he can till thoroughly, (2) there must be rotation of crops, and (3) there must be soil renovation by fertilizing, i. e., by keeping stock in connection with grain farming.

More optimistic was the address of the chairman of the Agricultural Subsection at the meeting of the British Association in Winnipeg last summer. In this Major P. G. Craigie, of the British Board of Agriculture, while recognizing the increasing population to be fed, saw

in the development of new areas, of more intensive methods, and of improved varieties of wheat, relief from immediate alarm for the bread supply. He cautioned, however, against treating the land as if it were "a mere wheat mine to be exhausted in all haste and without regard to its permanence and its future development," and urged more careful tillage and diversification.

Dean Davenport, of the University of Illinois, in a public address emphasized the fact that the agriculture of the future must be enormously productive in order to feed the teeming millions at the end of the present century. These conditions of population and demand will not be temporary, but permanent, and must accordingly be met by a permanent agriculture—a thing the world has never yet succeeded in establishing. No race, he said, has ever yet learned to feed itself except at the expense of the fertility of its own or some other country; and he prophesied that in the near future there is to be a struggle for land and the food it will produce such as the world has never yet beheld. As a consequence "we must devise and establish a permanent agriculture or go down in the attempt." A similar line of thought was followed by President J. L. Snyder in his address before the Association of American Agricultural Colleges and Experiment Stations, but with special emphasis on the social significance of a straitened food supply.

Dr. H. P. Armsby, of Pennsylvania, in a presidential address before the Society of Animal Nutrition, considered the future food supply from the standpoint of the amount of energy which could be stored up by the sun in the form of food products. This absolutely limits the density of population which a country can support from its own resources. As a means of conserving the products especially suited to human food, he pointed to the more general and efficient use of by-products of plant growth by feeding them to superior grades of live-stock. At present these by-products, such as straw, corn stover, etc., are not being utilized to the greatest advantage, and, furthermore, products suited to serve as human food, like corn and cereals, are now being fed to live-stock, although their roundabout conversion into human food through the animal is demonstrated to be very wasteful.

The Commission on Country Life, appointed by President Roosevelt in the fall of 1908, completed its inquiry and prepared a report early in the past year, which was transmitted to Congress and printed by it.

The Commission found that while in a general way the American farmer was never more prosperous or better off than at the present time, "agriculture is not commercially as profitable as it is entitled to be for the labor and energy that the farmer expends and the risks he assumes," and that "the social conditions in the open country are far short of their possibilities." The farmer's capital is small, the volume of his business is usually limited, and he stands practically alone against organized and syndicated interests. The country districts lack good roads for communication to relieve isolation and enable the economical and timely movement of products, and adequate and properly directed schools, which should be related to the daily life of the people and direct the rising generation to the country rather

than to the city. Education and good roads were the two most frequently mentioned needs in the hearings of the Commission. The Commission regards the development of a fully serviceable highway system as a matter of national concern. The first thing necessary is to provide expert supervision and direction, and develop a national plan.

It also urges that the farmer should have the privilege of purchasing where he can buy the cheapest and of selling advantageously, both of which would be promoted by well-directed cooperative enterprises and by a parcels post. Effective cooperation among farmers is strongly urged, to put them on a level with the organized interests with which they do business; and examples of successful cooperation are cited as illustrating the feasibility and advantage of this plan. The shortage of labor is another serious drawback to life in the country, affecting both the farmer and his wife. There is a lack of institutions and incentives that tie laboring men to the soil. In many parts of the country there is no adequate system of agricultural credit, whereby the farmer may readily secure loans on fair terms. Reliable savings institutions are also often lacking, which leads to the advocacy of postal savings banks.

The Commission called attention forcibly to the lessening productiveness of the land, and the effect of this on the material and social welfare of the farming people. It characterized the farming in this country as largely exploitative, consisting in mining the virgin fertility. "The lessening of soil fertility is marked," the Commission says, "in every part of the United States, even in the richest lands of the prairies. It marks the pioneer stage of land usage. It has now become an acute national danger, and the economic, social, and political problems arising out of it must at once receive the best attention of statesmen."

The deficiencies of country life are recognized by the people. A more or less serious agricultural unrest was found in every part of the United States, even in the most prosperous regions. There is a widespread tendency for farmers to move to town, to secure either better social advantages or better schools for their children. All this tends to sterilize the country and to lower its social status. Rural life, socially and otherwise, is not organized as it should be. The ultimate need of the open country is the development of community effort and social resources.

The Commission advocates the establishment of nation-wide extension work, which should carry information and advice directly to the farmer and his family, assist in the redirection of schools, and aid in the establishment of social and business organization. The great need everywhere of new and young leadership is strongly emphasized, and the Commission makes an appeal to all young men and women who love the country to consider this field and the opportunities offered in determining their careers.

One of the most important results of this inquiry was in demonstrating clearly the extent and character of the country life problem; and equally important was the pointing out of the fact that the time has now come for exact and comprehensive studies of the economic and social conditions of agriculture and of agricultural communities.

Much of the effect of this inquiry was lost by the failure of Congress to make any provision for continuing the work, as was urged by the President. The interest aroused in this movement has been kept alive, especially in the West, through the agency of the press. A Southwestern Interstate Country Life Commission was formed at a meeting in Guthrie, Oklahoma, in May; and a Country Life Day was observed at the National Apple Show, in Spokane, late in the fall. At the meetings in connection with the latter the appointment of a joint commission from the States of the Pacific Northwest was decided upon, and Oregon has led off in the appointment of the members of the commission for that State. In view of the interest in the report of the Roosevelt Commission, and the comparatively small edition in which it was published, the Spokane Chamber of Commerce has voluntarily reprinted the report at its own expense.

The United States Immigration Commission, appointed by Congress two years ago, has been conducting inquiries into the condition of colonies of foreign immigrants in various parts of the country. This inquiry has extended to all classes of foreigners engaged in farming in any of its branches, either as owners or renters, and has been directed to determining their success or failure, acquisition of property, extent to which they embrace American institutions, relations to the criminal classes, etc. A large amount of data on the agricultural colonies has been collected, which is being prepared for publication.

The discussion of abandoned farms has seemed to centre of late on New York State. The decline of farming in certain parts of the State has been the subject of several articles. The cause is attributed to cases of individual shiftlessness (which receive undue prominence), soil deterioration in some instances, bad roads, and social isolation. The State statistics are said to show about 20,000 vacancies on farms, and that these are being taken by foreigners. At the suggestion of the Commissioner of Agriculture of New York, Professor L. H. Bailey prepared a pamphlet on the agricultural situation in New York, in which he insists upon a higher rating for agriculture among human occupations, urges more faith in the land, and calls for a just appreciation of what the State possesses in the way of agricultural land and making the most of it. He believes there are as great opportunities for agriculture in the East as in the West, and suggests a campaign of publicity in respect to the agricultural possibilities of the State. Instead of continuing to dwell on the discouraging features of farming, the good side should be set forth, and "every time we describe one abandoned farm we ought to describe three well-occupied farms."

Speaking on this point recently, the Secretary of Agriculture referred to the shifting of the agricultural population into new regions, with its consequent influence on agriculture in the East. "The result has been," he asserts, "that some of the most fertile lands in our Eastern States—some of the most fertile lands of the world—have been left in a condition of practical if not actual abandonment, and the price of provisions has increased for the simple reason that there are not enough people actually to work the soils and to raise the

crops necessary to feed the non-producing population of the cities."

The Boston Chamber of Commerce has indicated its interest in agriculture by the appointment of a permanent committee on that subject, which has issued a very optimistic report upon the future of the New England farm. It points to a most advantageous market and lands cheap and plentiful which await the application of improved methods, energy, and determination, such as have enabled a high standard to be set in manufacturing.

In France a congress for the discussion of rural depopulation was held in June, 1909. It was shown that in 30 years the number of land-owning laborers had diminished from 1,134,000 to 589,000, and that there had been a great falling off in the number of small village merchants and tradesmen. The cause of rural depopulation was assigned to poor returns from the land, difficulty in securing farm help, and indifference of capitalists to investing money in rural districts. The system of training which turns the young people to commercial and professional careers, and the small size of the French peasant families at present were also cited as contributory causes. To meet this condition, practical training in agriculture, the employment of more farm machinery, the improvement of the economic and social status of the laborers, and the employment of married people on farms were among the remedies advocated.

In Germany, rural depopulation is causing much anxiety on account of the ever-increasing scarcity of agricultural laborers. Higher wages and better home surroundings for farm laborers are suggested as the only remedy. The shortage of adequate labor is leading to the suggestion of changes in farming systems to minimize labor and make the labor more productive.

In Switzerland a new law has gone into effect with relation to the splitting up of farms. The effect of the quite general custom of inheritance, under which the sons and daughters share equally in the real estate, has been to subdivide the farms into small parcels. The new law provides for keeping the property intact, and for its operation by the eldest son or other heir most competent to conduct the farm to the best advantage. By retaining the farms in the hands of the children who have been trained in agricultural pursuits, it is believed the youth will be kept on the land and the families of Swiss peasants held more intact.

Returns of the Board of Agriculture of Great Britain show a falling off from year to year in the area under cultivation. There are nearly one and a half million acres less under cultivation at present than ten years ago; and in thirty years there has been a shrinkage of 2325 in the number of small holdings (farms of 50 acres or less). The small holdings law, which went into effect in 1908, was aimed to remedy this condition. It empowers the county councils to purchase or hire land, by confiscation if necessary, for the purpose of providing small holdings for persons who desire to lease. They are to ascertain the extent of the demand for allotments, and the extent to which it is reasonably practicable to supply this demand. During the first year of the operation of this act, 23,285 applications were received for 373,601 acres of land, and over 13,000 of these ap-

plications have been approved provisionally, calling for approximately 185,000 acres. Over 700 applicants have been supplied with holdings by landowners direct, mainly through the intervention of the councils. In most cases the demand has been for small tracts, which could be carried on in addition to other regular work, and but few have expressed a desire to purchase their holdings.

The Royal Agricultural Society of England this year offers prizes, amounting to about \$2500, for the best managed farms in four classes, conducted by tenant farmers in Lancashire and Cheshire. As a partial solution of the problem of the unemployed in Great Britain, an extensive afforestation project has received considerable attention. It is estimated that 9,000,000 acres are available for the purpose, and that the annual afforestation of 10,000 acres would afford employment for 18,000 men temporarily and 1500 permanently, and would eventually yield a large revenue.

The movement for coöperative buying and selling is growing among farmers in the United States, and attempts are meeting with success. A potato exchange on Long Island, started last year, did a business of \$185,000 the second season on a capital of \$12,000. It handled about 300,000 bushels of potatoes for members, who averaged 10 cents a bushel nearer the New York quotations than when sold through middlemen. It also handled 1600 tons of fertilizer and large quantities of Paris green. A recent report on agricultural coöperative societies in Germany shows that there are 22,317 such societies at present, a gain of over a thousand within the year. Nearly 15,000 of these are agricultural credit societies, the remainder being for the purchase and sale of supplies, operation of creameries, and miscellaneous enterprises. Credit societies for farmers have been organized in India, loaning money at 12½ per cent. as compared with prevailing rates of 37 to 75 per cent., or even higher. In France the courts have decided that agricultural associations do not come under the head of coöperative societies, and can not carry on their mutual insurance and credit business under the laws relating to coöperative societies. The third National Congress of Agricultural Credit, held at Montpellier the past year, urged that laws be passed removing this limitation.

The Agricultural Bank of the Philippine government, recently organized, has over 1,000,000 pesos to loan to farmers at 10 per cent. per annum. A new law has been passed in Prussia, which has a direct relation to agriculture, in the leasing of farms, renewals, sales of products, etc. This law imposes a stamp tax on all verbal or written contracts relating to transfers, leases, mortgages, notes of indebtedness, deferred payments, etc. It is a revision of a law of 1895, but differs in applying to verbal as well as to written transactions.

MEETINGS AND EXPOSITIONS. A land and irrigation exhibition was held in Chicago for two weeks, beginning the latter part of November. From the standpoint of attendance it was one of the most successful exhibitions ever held in Chicago. While the representation was nationwide, it was largely an irrigation show, but some sections of normal rainfall made convincing demonstrations of an agriculture that comprehended grain and fruit, and the drained swamp lands pictured their own story. The

surprisingly large attendance, comprised mainly of city folk, reflected the interest aroused of late in country life and small farming among town people.

The tenth International Live-Stock Exposition, held in Chicago, November 27 to December 4, was accounted the largest and best show ever held. The entries numbered 3908, filling all available space, and in most classes the quality of stock was superior to that of previous years. The prizes offered aggregated \$75,000. Nearly all sections of this country were represented, together with numerous exhibits from Canada and other foreign countries, including for the first time an exhibitor and prize winner from Argentina. The grand champion of the show, a pure-bred two-year-old Angus, was exhibited by the Kansas Agricultural College, which purchased the animal a year ago and prepared it for exhibition. A steer exhibited by the same institution also won the reserve championship.

The fourth National Dairy Show was held this year in Milwaukee instead of at Chicago, where the former exhibitions occurred. The attendance was exceptionally good throughout, and the educational features of the exhibits were particularly strong. The fourth International Dairy Congress convened at Budapest, June 6 to 11. Over one thousand delegates were present. The programme included many excursions to typical dairy farms and milk depots, and there was an extensive exhibit of dairy products and machinery. Stockholm has been selected as the place of the next meeting of the congress, in 1911.

The Annual Dairy Show of the British Dairy Farmers' Association, at London, early in October, showed the progress made in that industry since the collapse of wheat prices led farmers to look to other branches of farming, and especially to the sale of milk. The third National Corn Exposition, at Omaha, December 6 to 18, surpassed the two previous shows in every department. The attendance was large. The champion exhibit of ten ears was sold at auction for \$335. In addition to corn, there were exhibits of all kinds of cereal grains, and a demonstration of the milling and bread value of different varieties of wheat.

The Dry Farming Congress met the past year at Billings, Mont., and the first Conservation Congress met at Seattle, Wash., August 26 to 28. The latter congress dealt largely with irrigation, dry farming, soils, transportation and other economic questions. The Apple Show, at Spokane, Wash., has now become an annual feature, and serves to attract much attention to the industry of apple-growing, as well as to stimulate effort in that direction. A New England apple show, held for the first time this year in Boston, was a marked success in demonstrating the high grade of fruit grown in New England and the possibilities of the industry.

In England, the Royal Agricultural Society's show was held at Gloucester the last of June. Bad weather seriously interfered with its success. The total attendance for the five days of the show was about 90,000 people, which is much below the average. The show was a notable one for the excellence and representative character of the display of live-stock. An international conference of sheep-breeders, at Gloucester, England, June 21, 1909, was the tenth conference of this sort, and was a representative gathering.

The sheep show at Sydney, Australia, has come to be considered the world's greatest exhibition of fine wools. The past year it eclipsed the best records of previous years for the even character of the exhibits.

Preparation is being made for holding an international agricultural exhibition in Buenos Ayres, June 3 to July 31, 1910, under the auspices of the Argentine government.

AHMED MIRZA. From July 16, 1909, Shah of Persia. He was born about twelve years ago and is the second son of Mohammed Ali, and the seventh of the Kadjar line of ruling princes. Although not the eldest son, he was nominated by his father Valiab, or heir apparent, because the mother of his elder brother was not of the Kadjar or royal line. For details of the events leading to his accession to the throne, see PERSIA, section *History*.

AIRSHIPS. See **AERONAUTICS**.

ALABAMA. One of the South Central Division of the United States. It has a total area of 51,998 square miles, of which 719 square miles are water. The population in 1900 was 1,828,697. According to a Federal estimate, made in 1909, the population was 2,112,465. The capital is Montgomery.

MINERAL PRODUCTION. The two chief mineral products of the State in both amount and value are coal and iron. The State ranks third in the production of iron, and according to the reports of the United States Geological Survey there were produced in 1908, 3,734,438 long tons. This was a decrease of nearly a million tons over the production of 1907, which was 4,039,453 tons. On account of the high prices received, however, the value of the iron mined in 1908 was \$4,358,902, but little less than the value of the product for 1907, \$4,863,129. It has been estimated that the resources in the iron ore district of Birmingham amount to about 340,000,000 tons. But a small part of the iron in the State has therefore been mined as yet. In many portions of the State where iron is known to exist no attempts have been made as yet to mine the ores. Alabama ranks fourth among the States in the production of pig iron. There were produced in 1908 1,397,014 long tons, a slight decrease from the product of 1907, which was 1,686,674 tons. There were on January 1, 1905, 51 blast furnaces in the State. Of these 26 were out and 25 were in. The ability of manufacturers in the State to make cheap iron is shown by the fact that the output of Alabama was 17 per cent. less than in 1907, while in Illinois the per cent. of decrease was 31, in Virginia 33, Pennsylvania 38, Ohio 45, Maryland and West Virginia 65, while the average for the entire United States was 38.2 per cent. The State ranks fifth in the production of coal, being surpassed only by Pennsylvania, Illinois, West Virginia and Ohio. There were produced in 1908, according to the reports of the United States Geological Survey, 11,604,593 short tons, having a value of \$14,647,891. The effect of the general business depression was shown by a decrease of 2,645,861 short tons, or 18.47 per cent., in quantity and of \$3,757,577, or 20.42 per cent., in value as compared with the output of 1907. Nearly half the decline in production was in the quantity of coal made into coke, this item having decreased from 4,973,296 short tons in 1907 to 3,875,791 short tons in 1908. The prices of

coal were fairly well maintained during the year, the average price per ton showing a decrease of only 3 cents or from \$1.29 in 1907 to \$1.26 in 1908. The total number of men employed in the mines was 19,197. The number of mining machines in operation was 197, the same as in 1907. Some labor difficulties arose over an attempt to strengthen the mine workers' organization in Alabama, when the President of the United Mine Workers, on June 30, 1908, declared a strike of all the union mine workers in the State, to take effect July 6. The strike was not successful, and on August 31 it was officially called off. It was estimated that the original coal supply of the State before mining began was 68,903,000,000 short tons. Of this amount, up to the beginning of 1909, 176,338,903 tons had been mined. Alabama ranks third in the production of coke, being surpassed only by Pennsylvania and West Virginia. The coke production has decreased from 1905. There were produced in 1908, 2,362,666 tons, as against 3,022,794 tons in 1907, and the value of the production fell from \$9,216,194 in 1907 to \$7,169,901 in 1908. There were 45 coking establishments in the State in 1908, an increase of two over 1907. The total number of ovens increased from 9989 to 10,103. Of the 45 establishments, 10, with a total of 1885 ovens, were idle during the year. There were no new ovens building at the beginning of 1909. The establishments include two by-products recovery plants, with a total of 280 ovens, all of which were operated during the year. Clay products of considerable value are produced in the State. In 1908 the value of these products was \$1,559,606 as compared with \$1,754,409 in 1907. There were produced in 1908 1,933.44 fine ounces of gold, valued at \$41,208, and 282 fine ounces of silver, valued at \$149. No copper ores or pyrite ores were mined in Alabama in 1908. Other mineral products of the State are lime, limestone and graphite. (See COAL, PIG IRON, IRON, GOLD, SILVER, etc.) The value of the mineral products of the State for 1908 was \$35,010,808 as compared with a value of the product for 1907 of \$52,136,749.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the chief crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 43,646,000 bushels, from 3,233,000 acres, valued at \$37,099,000; winter wheat, 1,029,000 bushels, from 98,000 acres, valued at \$1,338,000; oats, 4,455,000 bushels, from 270,000 acres, valued at \$3,118,000; rice, 35,000 bushels, from 1000 acres, valued at \$28,000; potatoes, 1,360,000 bushels, from 17,000 acres, valued at \$1,333,000; hay, 166,000 tons, from 111,000 acres, valued at \$2,241,000; tobacco, 360,000 pounds, from 600 acres, valued at \$104,400. The corn crop which has been the chief feature in the agricultural development of the State in the last few years was somewhat smaller than in 1908, when the product was 44,835,000 acres. Cotton is the chief agricultural product of the State. The crop in 1909 was estimated at 1,017,826 bales, as compared with 1,332,003 in 1908. Since 1903 the value of the crop has greatly exceeded that of the years previous. The number of farm animals in the State has increased notably from 1900 to the close of 1909. The number in the latter year was as follows: Horses, 171,000; mules, 253,000; milch cows, 289,000; other cattle,

528,000; sheep, 178,000; swine, 1,176,000. The wool clipped in 1909 was 456,320 pounds as compared with a product of 466,240 pounds in 1908.

FISHERIES. The total value of the product of the fisheries of the State for the year ending December 31, 1908, was \$387,220. Of these products by far the most important was oysters. There were 536,300 pounds of oysters taken during the year, valued at \$168,870. Next in order of importance were red snappers, 2,635,200 pounds, valued at \$92,310; mullets, 1,655,500 pounds, valued at \$33,050; catfish, 323,000 pounds, valued at \$16,880; buffalo, 225,900 pounds, valued at \$10,370. Among other products of the fisheries were carp, redbfish, drum flounders, crabs and shrimp. The number of independent fishermen was 747, and 61 vessels were employed in the fisheries of the State.

EDUCATION. The school attendance in 1909 in the State was as follows: whites, 271,810; colored, 133,316; total, 405,126. There were 2164 white male teachers and 3984 white female teachers. The colored male teachers numbered 740, and the colored female teachers 1186. The total expenditures for the purposes of education during the year were \$2,562,641. This expenditure refers almost exclusively to work in the common schools, grades one to seven inclusive; a few schools, however, participating in this fund, did high school work. A law was passed in 1907 providing for a high school in every county. This carried with it an annual State appropriation of \$200,000, to aid in paying the salaries of teachers in high schools established under it. The State has made important progress in education in recent years.

FINANCE. The report of the State Treasurer for the year ended September 30, 1909, showed a balance in the treasury, September 30, 1908, of \$1,360,833. The receipts from October 1, 1908, to September 30, 1909, amounted to \$4,707,245. The disbursements during the fiscal year were \$5,309,908, leaving a balance in the treasury, September 30, 1909, of \$758,170. Of the receipts \$1,102,107 came from State taxes and \$1,352,260 from the special school tax of 1908. The largest expenditure was for education. For this purpose there was dispensed from the State treasury during the year \$1,975,455.

CHARITIES AND CORRECTIONS. Among the institutions under control of the State are the Alabama State Hospital at Tuscaloosa, the Alabama Schools for the Deaf, Dumb and Blind at Talladega, the Alabama Boys' Industrial School at East Lake, a reform school for white boys, the Bryce Hospital for Insane White at Tuscaloosa, and the Mount Vernon Hospital at Mount Vernon, for insane negroes, under the control of the Board of State Trustees. The State appropriates \$3.65 per capita per week for the maintenance and improvement of these institutions. For the Alabama Insane Hospital, the legislature appropriated in 1909 \$344,662; for the Alabama School for the Deaf, \$39,157; for the Alabama School for the Blind, \$20,930; for the Alabama School for Negro Deaf and Blind, \$11,500; and for the Alabama Industrial for White Boys, \$18,725. For the maintenance of prisons there was disbursed \$482,207.

POLITICS AND GOVERNMENT. There was no regular session of the State Legislature in 1909, as the regular sessions are quadrennial and the last was held in 1907. There was, however, an

extraordinary session held to pass a more stringent Prohibition law. The legislature of 1907 was elected on a local option platform and it passed a county local option bill. The counties which voted for Prohibition on their own initiative that year were under no-license on January 1, 1908. Among these counties was Jefferson, the largest and most populous county of the State, in which Birmingham is situated. The administration accepted this as a demand for still more Prohibition and the legislature was called in special session in 1908 and passed the so-called State-wide bill. This bill made the whole State dry by legislative enactment on January 1, 1909. Attempts were made to have this law declared unconstitutional in 1908 and 1909, but on April 6, 1909, the State Supreme Court declared the law valid. Flaws were found, however, in the State-wide bill, and early in 1909 the violations of the law were becoming notorious, especially in the cities. Locker clubs and other subterfuges flourished, and the conditions were little different from what they were under the open saloon. The flagrant violations and defiance of the law crystallized the sentiment for still more strict legislation, and an extraordinary session of the legislature was called in July, 1909, to meet the situation. The measure passed has been pronounced the most drastic Prohibition law ever enacted in any State. By this provision the State was given power to close up all places supposed to sell intoxicants. Any officer might enjoin or close up, the burden of proving innocence being upon the accused. Clubs were pledged to seek not to evade the law on penalty of loss of charter, and the possession of liquor was made *prima facie* evidence of guilt, and the defendant was presumed guilty until he could prove that he had not the liquor for an unlawful purpose. The right of trial by jury was denied. The laws included other measures, one of which prohibited any sort of liquor advertising, and threw every safeguard around the Prohibition law. Another provided for impeachment of officers who failed to put the law into effect. Still another was designed to prevent the sale of liquor in clubs. On September 22, in the inferior criminal court of Mobile, Judge Alford declared inoperative that section of the law which prevents transportation of liquor from one person to another. He declared that, in his opinion, the law, or that portion of it referred to, was not a reasonable exercise of police powers. This decision was a blow to the Prohibitionists, as it had prevented liquors from coming into the State in any large quantities. It was the most powerful weapon given them in the new bill. In addition to passing this measure, the legislature made provision for submitting to the people a constitutional amendment providing for Prohibition. This was designed to settle for all time the liquor question in the State. The election on this amendment was held November 29, and it was defeated by over 27,179 votes, probably the largest majority ever given against any measure or candidate in the history of the State. This result, however, is not to be taken as a distinct repudiation of Prohibition. Many Prohibitionists were opposed to putting Prohibition in the constitution because they maintain that Prohibition in Alabama is still an experiment, and that the experience thus far has not been such as to justify putting it into an organic law.

On October 6, Governor Comer made a remarkable attack in a newspaper interview, assailing Judge Thomas C. Jones of the United States Court for his action in deciding certain railroad rate cases against the State. He declared that it was generally understood that Judge Jones decided the cases before he heard the evidence, and that the belief was that he had informed the railroads beforehand what he was going to do. In an interview previously given, Judge Jones resented similar remarks made in a speech by Governor Comer, and this interview was given as the Governor's reply. Judge Jones later, in a public statement, denied the Governor's charges, using the words, "in language as vigorous as it is possible for a judge to use in the public print."

The legislature, on August 10, unanimously adopted a resolution ratifying the income tax amendment to the constitution of the United States. Alabama was the first of the States to ratify this amendment.

OTHER EVENTS. The sheriff of Mobile county was impeached on June 30, and his removal from office ordered by the Supreme Court of the State, because he permitted a mob to take a negro from the jail and hang him. At the time of the execution the grand jury acquitted the sheriff of blame, but a mass meeting of citizens condemned the action and petitioned the Governor to impeach the sheriff. This was the first case tried under the new constitutional provision of the State, which lays upon the sheriff the responsibility of protecting prisoners under his control. On February 2, seventeen men were killed by an explosion in the mines of the Birmingham Coal and Iron Co., at Short Creek. The explosion was caused by a windy shot. On January 18, Spring Hill College, the oldest Jesuit institution in the Southern States, was destroyed by fire. The buildings destroyed included the college chapel, exhibition hall, music room, college library, college museum and two dormitories. A severe tornado passed over Morgan county on April 1, killing several persons and causing much damage to property. During the year the \$2,000,000 terminal station at Birmingham was nearly completed and it was expected that the railroads would occupy it early in 1910. An important event in the railroad history of the State was the entrance of the Illinois Central into Alabama, with Birmingham as its terminus. By an enactment of the legislature the city of Birmingham took in a number of its suburbs on January 1, 1910. This gives the city a population of over 125,000. The United States Steel Corporation announced late in 1909 that \$7,000,000 had been appropriated for improvements on its Alabama properties during the next year. This will be devoted to getting the adequate water supply at Ensley, for industrial purposes.

OFFICERS: Governor, B. B. Comer; Lieutenant-Governor, Henry B. Gray; Secretary of State, Frank N. Julian; Auditor, W. W. Brandon; Adjutant-General, Bibb Graves; Attorney-General, A. M. Garber; Treasurer, W. D. Seed; Superintendent of Education, H. C. Gunnells; Commissioner of Agriculture, J. A. Wilkinson; ex officio Commissioner of Insurance, F. N. Julian—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, John R. Tyson; Associate Justices, Jonathan Haralson, N. D. Denson, John C. Anderson, R.

T. Simpson, James R. Dowdell, and Thomas McClellan—all Democrats.

The State Legislature of 1909 was composed of 35 Democrats in the Senate, and 104 Democrats, 1 Republican and 1 Populist in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

ALAMOSITE. See MINERALOGY.

ALASKA. A territorial possession of the United States, whose government is as yet unorganized, situated at the northwestern extremity of North America. The total area, according to the revised survey of 1906, is 586,400 square miles. The population, which has remained practically the same during the past two or three years, is about 31,000, distributed as follows: First judicial division, 9000; second judicial division, with Nome as its centre of population, 7000; third judicial division, with Valdez and Cordova as centres of population, 7000; fourth judicial division, with Fairbanks as the centre of population, 10,000. The population in the placer mining camps has apparently passed the maximum and is at present declining in number. This decline is largely offset by an increase along the southern coast, where railroads to the Bering River and Matanuska Coal Fields and to the Chitina Valley are under construction. The population is engaged almost entirely in mining, railroad construction, and fishing, and occupations incident thereto. A few people are engaged in truck farming near the mining camps. The native population is approximately 35,000 and remains practically the same from year to year.

AGRICULTURE. An agent of the Department of Agriculture conducted experiment stations in various sections of Alaska in 1908-9. The result was, on the whole, satisfactory. Oats and wheat were fully matured at Rampart and in the Tanana Valley. The Manly Hot Springs in the Tanana Valley and the hot springs near Nome grow a large variety of vegetables and plants with success. Several promising experiments in raising cattle on the islands of the Aleutian group are being made. The government is experimenting with raising sheep and Galloway cattle on Kodiak Island. (See IRRIGATION.)

MINING. The total value of the mineral production of Alaska for the calendar year 1909 is estimated by the United States Geological Survey at \$20,200,000, as compared with about \$19,600,000 in 1908. The strikes and labor troubles which materially interfered with mining at the Treadwell mines in southeastern Alaska and in Fairbanks District in 1908 had no recurrence in 1909 and mining was conducted without embarrassment during the year. Gold is being successfully mined throughout the whole district. The development of recent discoveries of veins carrying high-grade ore has been very encouraging and there seems to be a revival of interest in gold quartz mining throughout southeastern Alaska. Discoveries of quartz carrying high values were made in the Fairbanks District, and a limited amount of development work was done with encouraging results. High-grade gold ores were discovered in the Kenai Peninsula near Moose Pass and on Willow Creek, and the best of these prospects are being developed. Placer mining continues in a small way in southeastern Alaska

and the beach at Cape Yaktag and at Cook Inlet. This character of mining continues throughout the Yukon Valley, and activities in the Fairbanks District continue unabated. Increased interest was shown during the year in prospecting in the Sushitna and Kuskokwim valleys, and encouraging reports are made of these districts. On the Seward Peninsula drift mining is giving way to dredging and hydraulic mining. Decreasing opportunities for the individual miner and prospector on the Seward Peninsula have been followed by an increase in the prospecting for lodes and veins carrying precious metals. Reports of promising discoveries along these lines have been made from time to time.

The increased demand for copper and its prevailing high price have attracted much attention to the copper deposits of Alaska. Three regions in the Territory give promise of making important contributions to the copper market: Prince of Wales Island, in southeastern Alaska, Prince William Sound, and the Copper River and Chitina River regions. The first two, which are near the sea, have produced copper for several years, but the third is still in the prospecting stage. During 1909, the low price of copper prevented much development, but the completion of the Copper River and Northwestern Railroad to the Chitina Valley, and the extension of the Alaska Central Railroad to the Matanuska Valley, and with a moderate increase in the price of copper, a renewed activity in prospecting and the development of copper mines may be expected.

The production of coal in Alaska is not yet considerable, although vast fields of coal exist in various parts of the Territory. Only between 300 and 400 square miles of coal-bearing rocks have been surveyed in detail by the United States Geological Survey, and the data in regard to the remaining 800 square miles, believed to be underlain by coal, are very meagre. It is estimated that the unsurveyed coal fields cover 12,000 square miles, but of these fields only the general outline is known, and they must be surveyed to ascertain how much of the area is underlain by workable coal beds. The mineral is found to be widely distributed throughout the district, and is found to be of a very high grade in the Matanuska and Bering River valleys. Deposits of coal are also to be found on the Seward Peninsula. As no titles to any coal fields in Alaska have been secured, development of the deposits has not been made. It is believed that when title to coal lands in the Bering River and Matanuska fields is given development will follow rapidly, as transportation seems to be assured to these fields. The opening up of the coal fields resulted in many charges of fraud in the attempt to obtain title, and these charges came to be an important feature in the administration of President Taft. A discussion will be found in the article UNITED STATES, paragraph *Administration*, and in the article PUBLIC LANDS. Small quantities of petroleum have been found in the territory east of the Copper River. Some wells have been opened, but oil in commercial quantities is not yet produced. Shipments of gypsum are made from Chicagof Island and deposits of this mineral are reported in other parts of the Territory. Marble of various colors and quantities, which is found in various parts of the Territory, is being successfully quarried at Shakan on Prince of Wales Island, and the shipments

from the quarries during 1909 were materially increased. Discoveries of deposits of antimony are reported in the Nome and Port Clarence districts on Seward Peninsula, in the Kantishna country, in the Yukon Valley and in Cross Sound in southeastern Alaska. Graphite, bismuth, cinnabar, and talc have been found, but sufficient work has not been done to prove the value of any of these deposits.

TRANSPORTATION. The future development of Alaska depends very largely upon all-the-year-round easy communication between the coast and the interior, and this naturally depends upon transportation facilities. There are ample reasons to warrant the construction of railroads from the coast to the Bering River and Matanuska coal fields, and to the copper mines in the Alaskan range of mountains, but beyond this there is no present business to warrant capital unaided to construct railroads. A diversity of opinion of engineers as to the best route from the coast to the interior has led to some governmental experiments in railroad construction, without material progress. If a railroad is built to the Matanuska coal fields, it would establish a permanent community north of the coast range of mountains where men will have an opportunity to earn a livelihood throughout the year, and establish a base from which they can prospect for a radius of 100 or 200 miles. With the completion of the Copper River and Northwestern Railroad, and a summer communication to the Bonanza Mine, a large permanent camp will be established on the south slope of the Alaskan range of mountains, from which men can prospect for copper in this range of mountains and north to the headwaters of the White River, where very promising indications of copper are already known. On the Seward Peninsula, the Council City and Solomon River and the Seward Peninsula Railroads continued in operation during the year. The Copper River and Northwestern Railroad continued construction to the Copper River Valley. On July 25 this railroad began operating the first 55 miles of its route, extending from Cordova to a point above Abercrombie Rapids on the Copper River. By the end of 1909 it had completed about 105 miles of railroad. This company employed during the summer about 3000 men on construction and maintenance work. The Alaska Central Railroad, under the direction of a receiver, laid 21 miles of additional track during the summer, and has now 75 miles of the railroad completed. The Tanana Mines Railway continued to operate its road successfully from Chena and Fairbanks to the outlying creeks and mining camps.

COMMERCE. There was an increase in the commerce between the United States and Alaska during the fiscal year 1909. The value of domestic merchandise shipped from the United States to Alaska and merchandise shipped from Alaska to the United States was practically the same as in the year 1907. There was a falling off in the amount of merchandise shipped to the Bering Sea and Arctic Ocean and to the Yukon River. This decrease was overcome by an increase in the value of merchandise shipped to southeastern Alaska and to southern Alaska. The amount of gold shipped from Alaska to the United States in 1909 remained practically the same as in 1907 and 1908. The domestic merchandise shipped

from the United States to Alaska in the fiscal year 1909 amounted to \$17,186,445, as compared with \$15,957,576 in 1908 and \$17,811,093 in 1907. This merchandise was divided as follows: Coal, \$172,238; lime, \$611,110; hardware and machinery, \$4,812,280; provisions, \$5,730,895; liquors, \$740,667; and all other, \$5,119,255. The value of merchandise and precious metals shipped from Alaska to the United States in the fiscal year ending June 30, 1909, was \$34,335,435, as compared with \$31,766,044 in 1908 and \$37,537,676 in 1907. Of this the domestic merchandise, including salmon and other fish, copper ore, whalebone and furs, amounted to \$13,055,355; the domestic gold amounted to \$17,782,493 and the foreign gold to \$3,464,200. The imports of Alaska from other countries than the United States amounted in the fiscal year ending June 30, 1909, to \$647,331, of which by far the larger part came from Canada and from Asiatic Russia. The exports to other countries than the United States amounted to \$949,669, of which \$907,810 came from Canada.

EDUCATION. The people of Alaska have from the very beginning of its occupation showed an interest and pride in public schools, and during 1909 they were administered with gratifying results. Schools in the incorporated towns are supported largely by the license moneys collected within the towns, and are under the control of the school boards and town councils. During the year schools were successfully maintained at Chena, Douglas, Eagle, Fairbanks, Juneau, Ketchikan, Nome, Skagway, Valdez and Wrangell. In the schools established under the Act of Congress, commonly known as the Nelson Bill, 684 pupils were in attendance, as compared with 672 in 1908. The cost of maintenance of these schools was \$40,762. The government schools for the education of natives continue under the charge of the Bureau of Education, which during 1909 increased the number of its schools from 62 to 69. The number of pupils increased from 3067 during the fiscal year ending June 30, 1908, to 3725 for the year ending June 30, 1909. The efforts of this Bureau to increase the efficiency of the schools and to make them extend their influence to adults as well as to the children, has already begun to show very good results, and it is confidently expected that succeeding years will bring increased results from these expenditures. The Presbyterians, the Roman Catholics, the Moravians, the Methodists, Baptists, Episcopalians, Friends, the Swedish Evangelical, and the Orthodox Greek Church carry on educational work among the natives, with excellent results.

INDIANS. The educational work conducted among the Indians shows great progress. A strong effort is being made by the agents of the Bureau of Education to reach the physical needs of the natives and to improve their general physical condition. These efforts are making a decided change for the better. The Act of Congress approved February 6, 1909, made it a felony to sell intoxicating liquors to the natives. Under the provisions of this act, prosecutions against the violators of this provision were vigorously pushed during the year, and it is expected that this illegal traffic will be largely diminished.

NATIONAL FORESTS. The national forests of southeastern Alaska were extended in 1909. The administration of these forests continued



COPYRIGHT, 1907. BY DODD, MEAD & CO.

to conserve the timber and provide for its liberal use without hampering the general development of the country, and it has met with the general approval of the people of the Territory. The production of lumber was only for local uses during 1909, though small shipments were made from Ketchikan to points east of the Rocky Mountains in the United States. A large percentage of the standing timber within the forest reserves of southeastern Alaska is overripe and should be removed to make way for a new growth. There are two national forests, the Chugach, with an area of 11,280,640 acres, and the Tongass, with an area of 15,480,986 acres. During the fiscal year ending June 30, 1909, \$13,448 was received from the sale of timber from the national forests in Alaska.

FISHERIES. The total pack of the salmon canneries of Alaska for the year 1909 amounted to about 2,278,000 cases of 4 dozen 1-pound cans to the case. The experiment of hatching salmon fry continued during the year under the direction of the United States Fish Commissioner. Halibut fishing continued during the year, but suffered from the low price of halibut. A few vessels were engaged in catching cod, salting and taking them to San Francisco and Seattle for final preparation for the market. A plant for extracting oil and making guano from whales has been in successful operation at Tyee, Admiralty Island, for the past two years.

FURS. The value of the furs shipped from Alaska in 1909 showed considerable increase over the value of the shipment of 1908. The comparative figures were as follows: 1909, \$537,162; 1908, \$463,108.

CABLES AND TELEGRAPHS. The service rendered to the people of Alaska by the military cable and telegraph is excellent and highly beneficial. The land lines were strengthened, and the service is growing annually better.

POLITICS AND GOVERNMENT. On May 18, Walter E. Clark was nominated for Governor of Alaska to succeed Wilford B. Hoggatt, who had resigned. The problem of the organization and government of the Territory was brought before Congress, but nothing was done, although a bill was introduced on January 7, by Mr. Wickersham, the Territorial delegate, providing for a legislature of twenty-four members, eight Senators and sixteen Representatives. In response to a communication from the leading editors and mayors of the Territory, begging him to recommend to Congress an elective legislature for this Territory, the President replied that in his opinion Alaska was not yet fit for self-government in the form of a legislature. He declared himself willing to recommend that it should have the commission form of government similar to that of the Philippines.

For an account of the part taken by Alaska in the Alaska-Yukon Exposition, see EXPOSITIONS.

OFFICERS: Governor, Walter E. Clark; Secretary to the Governor, William H. Loller; ex-officio Secretary of Alaska, William S. Distin; Delegate to Congress, James Wickersham.

JUDICIARY: First Division, Thomas R. Lyons; Second Division, Alfred S. Moore; Third Division Edward E. Cushman; Fourth Division, P. D. Overfield. The Governor is ex-officio Superintendent of Public Instruction of schools outside incorporated towns, and for schools

maintained for children of white and mixed blood.

ALASKA-YUKON-PACIFIC EXPOSITION. See EXPOSITIONS.

ALBAUGH, JOHN W. An American actor and theatrical manager, died Feb. 11, 1909. He was born in 1837 at Baltimore, Md. He made his first appearance in that city as Brutus, in *The Fall of Tarquin*, in 1855, under the stage management of Joseph Jefferson. He appeared in many other parts, the best known of which was perhaps that of Louis XI, in the theatre in New York which later became Daly's Theatre. From 1868 until 1899 he was manager of theatres in St. Louis, New Orleans, Albany, Washington and Baltimore. In the latter year he retired from the stage. In his later years he maintained a famous stock farm near Washington, D. C.

ALBERT I. A Belgian prince, who on December 23, 1909, succeeded Leopold II. (q. v.), as third King of the Belgians. He was born in 1875, the only son of Count Philippe of Flanders, younger brother of Leopold II. He received a careful education and in 1900 married the Duchess Elizabeth, daughter of Karl Theodor, Duke of Bavaria, and Marie Joseph, daughter of Prince Miguel of Braganza. King Albert, who on his accession to the throne bore the title of Count of Flanders, is one of the most popular members of the reigning house of Belgium. He is a great traveler and a student of politics and economics. In 1898 he visited the United States and studied railroading under the guidance of James J. Hill. He made an extended visit to the Congo several years later, and upon his return to Belgium strongly urged the need of railroad development and of reform in the treatment of the natives. He is said to be adverse to pomp and display and to be profoundly interested in social questions. He has three children, Prince Leopold, aged 9, Prince Charles, aged 7, and Princess Marie, aged 4. In his speech at the time of his accession, King Albert, referring to the Congo State, said: "In the Congo the nation desires a policy of humanity and progress to be pursued. A colonizing mission can be but a mission of high civilization. Belgium has always kept her promises, and when she undertakes to apply a policy worthy of her in the Congo, nobody has a right to doubt her word." In relation to his conception of the duties of a king, he said: "The throne has certain prerogatives and certain responsibilities. The sovereign must be a servant of the law and the supporter of social peace. Before the country I take a pledge to do my duty scrupulously and to consecrate all my strength and life to the service of the Fatherland." See BELGIUM.

ALBERTA. A province of Canada (since September 1, 1905). It includes the former district of Alberta, the western part of Athabasca, and a strip of Assiniboia and Saskatchewan. The capital is Edmonton. The area is about 253,540 square miles (including about 2500 square miles of water). The population of the Territory now forming the province has increased rapidly, from 72,841 in 1901 to the estimated number of 300,000 in 1909. Free homesteads are available for thousands of settlers. The province is rapidly developing into a grain-producing region. For further statistical details, etc., see CANADA. See also EXPLORATION.

The provincial government consists of the Lieutenant-Governor, appointed by the Governor-General of Canada, of an Executive Council, or responsible ministry (four members), and of a unicameral Legislative Assembly (41 members, elected for five years). The Lieutenant-Governor in 1909 was George H. V. Bulyea (since September 1, 1905); the Premier (also Treasurer and Minister of Education) was A. C. Rutherford.

HISTORY. The final session of the first legislature opened in January, and Governor Bulyea, in announcing the government's programme, promised the introduction of bills for subsidizing the railways in the northern part of the province, for an increase of representation conforming to the increase of population, for redistribution of seats, for regulation of elections, the extension of the government telephone system, the coöperation of the government with the farmers in marketing their crops, and a bill for the protection of children. The government telephone system was established in January. As the result of a board of arbitration appointed under Secretary Lemieux the coal strike in Southern Alberta came to an end in May, and the miners resumed work on their old terms for a period of three years. Damage estimated at several million dollars was caused by prairie fires in October.

ALCOHOL. A general movement against the excessive use of alcohol was noticeable throughout most civilized countries in 1909. Statistics and a chart showing the consumption of alcohol and absinthe in France during 1907 have recently been published. The chart shows in a striking way the inequality of the consumption of alcohol in different districts of France. The greatest consumption occurred in a group of 21 departments, which, starting from Paris, embraces part of the northeast, north, and west of France, those departments producing large quantities of beer and cider. Seine Inférieure consumes nearly 12 litres per capita; while the consumption in the other portions of this group ranges from 4.06 to 9.11 litres per capita. The departments on the east and southeast consume from 2 to 4 litres per capita. In the centre, southwest, and a large part of the east of France, the consumption falls below 2 litres per capita. More alcohol is drunk in the towns than in the country, the proportion remaining the same according to the groups of the departments above indicated. It may be deduced from the statistics that the consumption of alcohol, but not of "absinthe," has greatly decreased, particularly in the towns. This is proved by comparison with figures for 1897 and 1907. Havre and Rouen, which head the list, have dropped from 19 to 15 and from 17.51 to 13.97 litres per capita; Paris from 7.95 to 3.45; Lyons from 5.73 to 2.59; Bordeaux from 4.52 to 2.75; Nice from 5.09 to 2.32; Toulon from 8.08 to 4.70; Montpellier from 5.27 to 2.27; etc. The reduction was noticeable in every district, and is to be attributed partly to increased taxation, which has led the liquor producers to reduce the proportion of alcohol in the liquor; in part to the town dues (*taxes d'octroi*) that have been imposed on alcohol; and finally, in part to the success of the anti-alcohol movement. The prohibition of alcohol in the barracks contributed to this result. During their term of compulsory military service young men are broken of the habit of drinking

alcohol, and drink less on their return to civilian life. The statistics, however, reveal an increased consumption of absinthe, particularly in the south, southeast, and east. Marseilles consumes 3 litres of pure absinthe per capita; while the departments of the north, centre, and west use less than 1 litre per capita.

A recent report of the League of Austrian Anti-alcoholists says that many teachers in the German and Slavic universities of Vienna, Prague, Cracow, Lemberg and Graz are recommending a non-alcohol plan of treatment in diseases such as pneumonia, erysipelas and septicemia, in which alcohol has hitherto commonly been used. Among the students, who still regard beer as indispensable at their meetings, the anti-alcoholic movement is constantly gaining ground, because it is thought, of the admission of women to the universities. The League has devoted large sums, thus far in vain, to the search for a substitute for beer. The national expenditure for alcohol beverages amounts to \$250,000,000 for a population of 28,000,000 in the Austrian part of the empire.

At the International Congress on Alcoholism held in London, Dr. Hollischer of Karlsbad presented statistics from 47 hospitals, in 18 of which alcohol was used for pneumonia and typhoid fever on a plan of alternating treatment. That plan was adopted in order to secure the most reliable proof of the effect of alcoholic and non-alcoholic treatment. In 238 cases of pneumonia treated with alcohol the mortality was 24.3 per cent.; in 248 cases treated without alcohol the death rate was 21.3 per cent. In 47 cases in which delirium tremens counted as a complication alcohol was given to 21, of which 15 proved fatal, while in 26 cases treated without alcohol only 9 died. This apparently shows that there is no foundation for the prevalent idea that alcohol is necessary in inebriate cases. The author says that while no one would wish to hold alcohol responsible for the small difference between the percentage of 24.3 and 21.3, nevertheless the failure of alcohol as a curative agent was plainly shown. Out of 161 typhoid patients 80 were given alcohol, of whom 15 died; and 81 were treated without alcohol and 12 died. At the Congress Professor Laitinen, director of the hygienic institution in the University of Helsingfors, gave the results of experiments made to prove the influence of alcohol on immunity. He said it was a well established fact that alcohol weakened the normal resisting power of the body against the germs of disease. He made experiments on the blood of 223 persons, abstainers and non-abstainers, whose conditions of life were similar in other respects; and he concluded that alcohol in comparatively small doses had a prejudicial effect on the protective mechanism.

In Canada during the official year-1907-1908, were consumed 6,849,763 proof gallons of alcohol; there being consumed in the process of manufacture 7,679,000 pounds of malt; 72,997,000 pounds of Indian corn, 14,921,000 pounds of rye, 3,117,000 pounds of wheat, 395,000 pounds of oats, and 17,212,000 pounds of molasses. The province of Ontario produces the greatest amount of whisky, seven of the twelve distilleries in Canada being within her boundaries. While the increase in the production of spirits is small compared with that of beer, it is claimed that temperance sentiment is gaining, as is indicated by the great increase in the pro-

duction and consumption of beer. It is shown that from 1869 on there has been a steady decline in the use of spirits in Canada, from a per capita consumption of 1.124 gallons in the former year, to 0.889 gallons at the present time. The consumption of beer has, however, been steadily on the increase, having risen from 2.290 in 1869 to 5.812 gallons per head in the present fiscal year.

The rôle of alcoholic beverages as a cause of insanity has been accurately studied of late. Alcohol constitutes, next to heredity, the largest single or contributing factor in the production of lunacy. Of 520 new cases in the State Hospital for the Insane in Norristown, Pa., alcoholism appeared to be a factor in 46 per cent., 13.6 per cent. being actually alcoholic psychoses. In Manhattan State Hospital, New York City, a study of 961 cases in which the causation was accurately determined revealed that alcohol was the determining factor in 55 per cent. of the men, and 22 per cent. of the women, averaging 37 per cent. Massachusetts gives alcohol as the precipitating factor in 30.6 per cent., while a study by Rosanoff shows 26.3 per cent. in 3 English asylums, and 24.9 per cent. in Austrian institutions. See *INSANITY*; *CHEMISTRY*; *INDUSTRIAL*.

ALDRICH, NELSON WILMARTH. A United States Senator from Rhode Island, who as chairman of the Committee on Finance in the Senate, introduced the tariff bill of 1909 into that body (see *TARIFF*; *UNITED STATES*, paragraph *Tariff*). He was born at Foster, R. I., in 1841, and he was educated in the public schools and academies. From 1871 to 1873 he was president of the Providence Common Council. He was a member of the Rhode Island General Assembly in 1875-6, serving in the latter year as Speaker of the House of Representatives. He was elected to the House of Representatives of the 46th Congress and was reelected to the 47th Congress. On October 5, 1881, he was elected to the United States Senate to succeed Ambrose E. Burnside, Republican. He was reelected in 1886, 1892, 1898 and in 1905. His term of service expires March 3, 1911. Senator Aldrich, as chairman of the Committee on Finance, is the Republican leader of the Senate and is, without question, the most powerful member of that body. It was largely through his efforts that the tariff bill was passed in the form in which it exists. He opposed in general the attempt of the "insurgent" Senators to bring about a marked reduction in tariff duties. This action made him unpopular in those sections of the country, notably the Middle and Far West, in which the sentiment for radical lower revision was strong. Senator Aldrich, as chairman of the Finance Committee, was the head of the Monetary Commission appointed to introduce laws to improve and regulate the banking and currency. Following the completion of the tariff bill and adjournment of Congress, he traveled throughout the West making speeches in explanation of the proposed measures. See *FINANCIAL REVIEW*; *CURRENCY*; *CENTRAL BANK*, and other subjects dealing with finance and banking.

ALEXANDER, JOHN WHITE. An American artist, elected in 1909 president of the National Academy of Design. He was born in Allegheny City, Pa., in 1856, and received his art education at the Royal Academy of Fine

Arts, Munich. He has received many medals and prizes at home and abroad. In 1901 he was made a Chevalier of the Legion of Honor. He is a member of many societies of art, and is president of the McDowell Association. His pictures hang in the Luxembourg gallery and in many American and European collections.

ALFALFA. This remarkable forage plant continues to grow in favor and importance from year to year. Although the crop is difficult to establish on soils where it has never been grown, efforts to introduce and establish it are continued in many localities, especially in the Eastern States. Success is now being met with in New York, Pennsylvania and some of the New England States. The increase in acreage in the States in which the crop is quite generally grown is pointed out by the following data: In 1899 Kansas had 267,376 acres of alfalfa, in 1909 993,539 acres; in 1899 Nebraska had 115,142 acres, as compared with 547,557 acres in 1908; Oklahoma grew only 15,116 acres in 1899, but in 1908 the area had reached 136,236 acres; and Utah, which had 268,229 acres in 1899, now has over 300,000 acres. Colorado has about 500,000 acres in this crop. Kansas and Nebraska, the two leading alfalfa-growing States, even produced about 2,000,000 tons of alfalfa hay in 1909. Among South American countries Argentina, where fields of alfalfa several thousand acres in size are grown, is the leader in the production of this crop.

The experiment stations of the country, as well as the Department of Agriculture, continue their investigations with alfalfa for the purpose of assisting the farmer to reap its great benefits and to spread its culture to new localities. The Kansas experiment station has pointed out during the year that of the original stand of young plants after seeding a large percentage dies off, while the remaining plants make up for this loss by increasing in size and sending out more stems and shoots. An examination showed that 223 fully developed plants contained on an average over 28 stems per plant. Varieties of alfalfa are introduced and plant-breeding is carried on to obtain sorts and strains suitable under less favorable conditions. For all conditions a high-growing plant with a large percentage of leaves is sought. In addition, varieties are looked for which will succeed in the colder, northern localities, in comparatively high altitudes and in sections with limited rainfall. Plant-breeding with alfalfa at the Colorado experiment station showed a variation in weight of the individual plants from 14½ oz. to 5 lbs. 10 oz. in the green state, and of 23 to 53 per cent. in the proportion of leaves to stems. It was also observed that some plants produce over 300 per cent. more seed than others. All our alfalfa seed is produced west of the Missouri River. Investigations by the Department of Agriculture and the stations also indicate that the most drought-resistant varieties require 15 inches of rainfall in the Dakotas, 18 inches in Nebraska, and 20 inches in Texas, but that when cultivated in rows less moisture is required.

ALGERIA. A country of northern Africa, constituting administratively an integral part of the French Republic. The capital is Algiers.

AREA AND POPULATION. The total area, including the Algerian Sahara, is estimated at 393,837 square miles, divided into northern (77,208), and southern (316,629) Algeria. Other estimates place it at 343,500 square miles.

Total population (1906), including military forces, 5,231,850 (729,960 Europeans and 4,501,890 natives). In 1907 the number of marriages was 41,124 (European, 5481; Mussulman, 35,643); divorces, 13,068 (223 and 12,845); births, including still-births, 143,074 (19,794 and 123,280); deaths, 109,974 (14,124 and 95,850). The agglomerated municipal population of Algiers in 1906 was 138,240 (total communal population, 154,049); Oran, 100,499 (106,517); Constantine, 46,806 (58,435); Bône, 30,004 (42,934).

EDUCATION. There were, in 1907, 1358 primary and infant schools, public and private, with 159,581 pupils, besides 256 Mussulman schools; 21 institutions for secondary instruction, with 5802 pupils (4390 boys, 1412 girls); 4 normal schools, with 259 students; and a university at the city of Algiers, with 1509 students. At Algiers, Tlemcen, and Constantine there are higher Mussulman schools, with 219 pupils in 1907. The native population is Mussulman, the Jews being classed as French citizens.

PRODUCTION. There were 3,542,208 persons (Europeans, 208,869) engaged in agriculture in 1906. The area under the principal cereal crops in 1908 was as follows: Wheat, 3,387,858 acres; oats, 3,208,275 acres; barley, 334,768 acres.

In 1908 Algeria stood fourth (France, Italy, Spain) in the list of the world's wine producers, with an output for the year of 171,682,000 gallons. The acreage under vines in 1906 was 186,481 hectares. Of the 2,816,000 hectares under forests, 2,146,000 belong to the state, and 426,000 hectares bear cork-oak trees, which yielded, in 1907, 115,228 quintals of cork, valued at 3,923,598 francs. Large tracts of forest land are leased for pasturage, etc., yielding a revenue of over 6,000,000 francs annually. Olive-oil production is an important industry, 12,802,170 trees in 1907 yielding 4,074,374 quintals of olives and 549,918 hectolitres of oil. Fruits are abundant. Flax and tobacco are cultivated. In 1907 the production of silk cocoons amounted to 2535 kilos. The live-stock in 1907 numbered 221,453 horses, 174,182 mules, 265,922 asses; 211,279 camels; 1,081,734 cattle; 9,314,515 sheep, 4,253,435 goats, and 97,587 swine. Ninety-three per cent. of the live-stock belongs to the natives. The wool clip in 1907 was 210,814 quintals.

Out of 89 conceded mines, 51 were in operation in 1907. The iron ore extracted amounted to 973,000 metric tons, valued at 10,558,000 francs; lead ore, 15,300 tons, 2,187,000 francs; zinc ore, 71,000 tons, 7,893,000 francs; copper ore, 16,300 tons, 324,000 francs. Silver, mercury, antimony, and coal are also mined. The value of the output of all mines in 1907 was 21,634,043 francs. The phosphate output in 1907 was 373,763 metric tons, valued at 11,216,500 francs.

In 1907, 4728 persons, with 1328 boats of 6863 tons, were engaged in the fisheries (sardine, allache anchovy, sprat, tunny-fish, and shell-fish); and the season's catch was valued at 3,831,341 francs.

COMMERCE. In 1908 the total (special) foreign trade was valued as follows: Imports, 460,556,000 francs, against 448,219,000 in 1907; exports, 325,812,000 francs, against 338,488,000 in 1907. The bulk of the trade is with France, the imports from that country in 1908 being

valued at 390,965,000 francs, and the exports thereto at 233,420,000. The chief articles of export (1908) were as follows: Wine, 80,751,000 francs; sheep, 34,380,000; wheat, 17,672,000; cork, 16,072,000; zinc ore, 11,595,000; barley, 11,168,000; olive oil, 10,942,000; phosphates, 10,601,000; fruit, fresh and dried, 9,998,000; oats, 9,953,000; iron ore, 9,685,000; wool, 9,572,000; hides and skins, 7,137,000; oxen, 6,896,000; tobacco, cigars, etc., 5,930,000; lead ore, 3,709,000.

COMMUNICATIONS. There were in operation in 1908, 2013 miles of railway. The railway receipts (1907) amounted to 41,204,923 francs; the subvention received for the year was 11,600,013 francs. The total length of national roads was 1859 miles. The total length of telegraph lines (1906) was 8900 miles; of wire, 23,362; the number of offices, 628; receipts, 2,000,941 francs. The merchant marine, January 1, 1908, consisted of 895 vessels, of 28,079 tons. In the French and foreign trade, 1908, the total number of vessels entering and clearing at Algerian ports was 4118, of 4,351,549 tons, and 4326, of 4,635,044 tons respectively. Algiers is now the leading coaling station in the Mediterranean. A French transportation company has been formed to establish regular communication into the interior, by rail south from Algiers about 35 miles to Berrouaghia, thence by automobile to Laghouat, thence by brake to Ghardaia, the leading town of the M'zab country.

FINANCE. Since 1901 the Algerian budget has been entirely distinct from that of France. Including military and extraordinary disbursements, the total expenditure exceeds the revenue by about 75,000,000 francs. Direct taxes only are paid by the natives. The proceeds of the military tax, the government monopolies, etc., are paid to France, but the departments of War and Marine are excluded from the estimates. For 1908 the estimate showed revenue, 108,592,201 francs; expenditure, 99,059,703. The budget estimate for 1909 was as follows: Revenue: Taxes, 50,517,850 francs; receipts *d'ordre*, 27,515,370; monopolies, etc., 8,491,250; state domain, 6,887,191; various, 2,320,467; exceptional, 600,000; extraordinary, 30,787,866; total, 127,120,094. Expenditure: Interior, 22,320,067 francs; public works, 21,542,137; administration and debt, 17,108,089; posts and telegraphs, 11,805,930; finance, 9,483,883; agriculture, etc., 8,790,355; native affairs, 4,983,891; various, 249,200; extraordinary, 30,787,966; total, 127,071,518. For the Southern Territories the revenue was estimated at 3,338,716 francs; the expenditure 3,332,652. In 1908 the total customs duties amounted to 13,702,817 francs. The debt amounted at the end of 1905 to 54,487,500 francs capital, and 114,072,219 francs in annuities, amortisation, and interest. The cost of the army is borne by the French government. The strength of the troops in Algeria, according to the budget estimate for 1909, was 56,113 of all ranks, and of the Tunis division, 19,554; or a total of 75,667 (Europeans, about 43,000; natives, about 32,000).

The Bank of Algeria, a bank of issue, has a capital of 20,000,000 francs; its note circulation is strictly limited to 150,000,000 francs. Its annual payments to the government, 1906-1912, are 250,000 francs. There are several co-operative agricultural banks assisted by government funds; and seven savings banks, with,

January 1, 1906, 18,561 depositors and deposits and interest to the sum of 4,542,524 francs.

GOVERNMENT. The government and administration of Algeria are centralized at Algiers under a governor-general, assisted by a consultative council. He has control of all administrative departments, excepting the non-Mussulman departments of Justice, Public Instruction, Worship and the Treasury. The French Chambers exercise the legislative power. Each of the three departments (Algiers, Oran, Constantine) is represented in the National Assembly by a senator and two deputies. The Governor-General in 1909 was M. Jonnart, appointed in 1903.

ALI MIRZA. See PERSIA.

ALKALOIDS. See CHEMISTRY.

ALL RED ROUTE. See CANADA.

ALTERNATORS. See DYNAMO-ELECTRIC MACHINERY.

AMADOR, MANUEL. The founder and first President of the Republic of Panama, died May 2, 1909. He was born in Cartagena, Colombia, in 1835. As a young man he engaged in business at Santiago de Veraguas, but in the '60's he went to Panama and became the leading physician on the Isthmus. In 1869 he was elected by the Conservatives President of the State of Panama, but before he could take office a revolution drove his party from power. He then resumed the practice of medicine and became chief physician of the Panama Railroad and the Pacific Mail Steamship Company. Much of the success of the revolution of 1903 is attributed to Dr. Amador. He refused to consent to delay in executing the *coup de main*, and the results proved his wisdom. The first constitutional convention held on February 16, 1904, unanimously elected Dr. Amador President. He served four years. He was very popular and a man of singular ability, as is shown by his success in bringing the Republic through its first years without serious difficulties.

AMBROSE CHANNEL. See HARBORS.

AMERICAN ASSOCIATIONS AND SOCIETIES. The associations and societies whose official titles begin with the word American will be found under the names of subjects in which such organizations are interested. For example, for the American Academy of Political and Social Science, see POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF.

AMERICAN CANAL. See CANALS.

AMHERST COLLEGE. An institution of higher learning at Amherst, Mass., founded in 1821. The attendance in 1909 was 531, with 48 members of the faculty. There were in the library 90,000 volumes. Gifts and endowments were received during the year to the amount of \$240,000. The new biological and geological laboratories completed in 1908 were occupied in 1909. Among the changes in the faculty were the resignations of Prof. John Erskine, and Dr. H. D. Austin, and the appointments of Prof. H. F. Hamilton, Prof. W. A. Stowell, and Prof. C. H. Toll. The total productive funds of the college amount to about \$2,250,000. The president is George Harris, LL. D.

AMMONAL. See CHEMISTRY, INDUSTRIAL, paragraph *Explosives*.

ANÆSTHESIA. In a statistical review of the anæsthesia given in Germany during 1908,

Neuber found that in the work of 112 surgeons chloroform was employed 20,613 times, with one death to each 2060 anæsthesias; ether in 11,859 cases, with one death to every 5930 cases; chloroform plus ether in 10,232 cases, with one death in 3410 anæsthesias; and the scopolamin-morphine mixed anæsthesias, 23,809 times, with one death in 4762 cases. Local anæsthesia or a few whiffs of ether were used in at least 25 per cent. of the cases, which would have required general anæsthesia twenty years ago, and no death occurred among these patients. The figures closely agree, as to the relative mortality from chloroform and ether, with those of Gurlt, collected from 1890 to 1897, in which there occurred one death in 2075 chloroform, and one in 5112 ether anæsthesias. In respect to post-operative pneumonias, Neuber's statistics show that the scopolamin-morphine mixed method is a distinct advantage, no instances of this complication occurring. Kilmell reports only 0.61 per cent. of post-operative pneumonias in 1908, in contrast with 2.5 per cent. formerly; and von Eiselsberg only 0.9 per cent. against 3.3 per cent. formerly.

Among the newer experimental methods of including general anæsthesia was that of Ritter, who found that he could render dogs completely insensible to pain, without loss of consciousness, by injecting a solution of cocaine into a superficial vein. Ten cubic centimetres of a one per cent. solution or 5 c.c. of a 3 to 5 per cent. solution in a 0.1 per cent. solution of sodium chloride were used. The dogs lay quiet but alert, and breathed normally, but evinced no sign of pain even when the actual cautery was applied to the most sensitive parts of the anatomy. The anæsthesia lasted from 15 to 30 minutes, or even longer, and none of the animals experimented upon showed serious symptoms afterward. Some of the smaller dogs, in which the dose was proportionately large, were restless, and ran around in circles for some minutes before finally quieting down. The method has not been employed on human beings as yet.

In spite of many adverse reports general anæsthesia through the rectum was advocated strongly by at least three clinicians of note, who insist that with adequate preparation and proper technique this method is no more hazardous than the inhalation method. Legneu asserts that its advantages are so great in operations on the head, neck and thorax that it deserves the preference in such cases. He eliminates the injurious effects, such as irritation of the intestines by the fumes of ether, by blending the latter with oxygen, and precedes the application by a brief inhalation of ethyl bromide to relax the ileocæcal valve. Carson advocates the rectal technique for operations on the thyroid gland, urging a lessened fatality, owing to the lungs being free to eliminate the ether as fast as it is absorbed; so that it can be safely used even when these organs are diseased. Dumont by the interposition along the course of the rectal tube of a hollow glass sphere, to condense the droplets of ether, allows only vapor to enter the intestines, thus preventing irritation and reaction on the part of the bowel. He also gives a preliminary dose of morphine.

SPINAL ANÆSTHESIA received a good deal of attention from continental investigators during 1909. To avoid direct contact with the spinal cord, Stoeckel revived Cathelin's method of epidural injections. This consists in the injection

of an anæsthetic (cocaine usually) into the sacral canal below and outside of the dura of the cord. Stoeckel used this method in 141 obstetrical cases. In 111 the effect was unmistakable and favorable; in 12 it was dubious, and in 18 no effect was apparent. It is asserted that the anæsthetic did not seem to decrease labor pains when these were once well started, and no untoward results were observed in the child. Jonnesco's method of spinal anæsthesia attracted considerable attention. According to the technique of the Roumanian surgeon, a quantity of stovaine is placed in a sterilized rubber tube and to this is added a small dose of strychnine, dissolved in water. Spinal puncture is made, either between the first and second dorsal, or between the twelfth dorsal and first lumbar vertebræ, or both combined, and the proper dose injected. For anæsthesia of the head and neck the patient lies with the head slightly raised if the operation is to be done on the neck, or with the head horizontal if the operation is on the face or skull. For operations on the lower portions of the body or within the abdomen, injection is made into the dorso-lumbar region, and the patient lies with the shoulders raised. Jonnesco claims to have had no mishaps or fatalities, and that anæsthesia is always induced if the fluid has entered the subarachnoid space. Anæsthesia persists from $1\frac{1}{2}$ to 2 hours. The addition of strychnine to the stovaine and the higher point of puncture constitute whatever there is of originality in this method, which was not regarded with much favor on account of the danger of wounding the spinal cord.

Spinal puncture for the production of partial anæsthesia without unconsciousness was devised and demonstrated in 1885 by Dr. J. Leonard Corning, of New York. It has been used most extensively, successfully, and in patients of all ages, by Dr. W. S. Bainbridge of the same city.

LOCAL ANÆSTHESIA.—Hertzler, Brewster and Rogers, of the University of Kansas, have used quinine and urea hydrochloride as a local anæsthetic in operations usually performed under cocaine. This method, suggested first by Thibault in 1907, possesses many advantages over cocaine anæsthesia, not the least important of which is absolute non-toxicity. In addition the drug gives a lengthened period of analgesia, a considerable diminution in the after pain of certain operative wounds, and a marked power to reduce hemorrhage. When injected into the tissues a sterile water solution of $\frac{1}{4}$ to 1 per cent. of the substance produced an anæsthesia lasting from 2 to 10 days. When a physiological salt solution replaced sterile water, the period of anæsthesia was somewhat lessened. As a topical application to mucous surfaces, solutions of 10 to 20 per cent. gave a fair degree of anæsthesia, but ideal results were attained only by injection into the sub-mucous tissues. Among the operations performed under this form of anæsthesia were drainage of the gall bladder, drainage of appendiceal abscesses, exploratory laparotomies, hernia, castrations, varicocele and hydrocele operations, and the removal of all sorts of tumors ordinarily undertaken under cocaine.

ANGELL, GEORGE THORNDIKE. An American humanitarian, died on March 16, 1909. He was born at Southbridge, Mass., in 1823, graduated from Dartmouth College in 1846 and

studied at the Harvard Law School. He was admitted to the bar in 1851. In 1868 he became a founder and president of the Massachusetts Society for the Prevention of Cruelty to Animals. This position he held until his death. He established, also in 1868, the magazine *Our Dumb Animals*, and was its editor as long as he lived. Practically all of Mr. Angell's long life was devoted to the propagation of kindly and humane treatment of animals. He caused to be established over 70,000 "Bands of Mercy," whose members were pledged to this object. In addition he distributed millions of pages of humane literature. Mr. Angell also took an active interest in movements for the prevention of crime, prevention of adulteration of foods, etc.

ANGLICAN CHURCH. See ENGLAND, CHURCH OF.

ANGOLA. A Portuguese colony in western Africa. Estimated area, about 500,000 square miles; population between three and four millions. It is divided into six districts: Congo, Loanda, Benguella, Mossâmedes, Huilla and Lunda. Capital St. Paul de Loanda. Cabinda, Ambriz, Novo Redondo, Benguella, Mossâmedes, and Port Alexander are important towns. There are reported to be 52 government schools, and 7 municipal and 2 private schools; with altogether about 2400 pupils. There are several missions. The chief products are coffee, sugar, wax, vegetable oils, cocoanuts, ivory, oxen, and fish. The rubber supply is becoming exhausted. Cotton growing, once a remunerative industry, is now neglected. Tobacco is grown and manufactured for local consumption. Petroleum and asphalt are worked by a British syndicate. Large quantities of malachite and copper, iron, petroleum and oils are found. Gold is also present. The Katanga copper mines will be greatly benefited by the new Lobito-Katanga railway now under construction. The imports and exports for 1907 (exclusive of Congo) amounted to 6,029,898 and 4,479,776 milreis respectively (1 milreis = \$1.08). The chief imports are textiles; the chief exports coffee, rubber, and dried fish.

The length of railways reported open to traffic is 470 miles. About 121 miles of the line, to extend from Tobito Bay to the Central African railway system, are in operation; 274 miles of the Loanda-Ambacca extension to Malange; and 70 miles of the Mossâmedes-Chella line. There were in 1907 1940 miles of telegraph line, and 63 offices. There were 122 post-offices. Angola has external communication by cable. In 1906 418 vessels of 810,769 tons entered, exclusive of coasting vessels. The revenue was estimated (1908-9) at 2,526,889 milreis; the expenditure at 3,494,330. The colony is administered by a governor-general (1909, Maj. H. de Paiva Conceiro).

ANIMAL DISEASES. See VETERINARY SCIENCE.

ANKYLOSTOMIASIS. See HOOKWORM.

ANNAM. A French protectorate in French Indo-China (q. v.). Area, 61,718 square miles. Population (1906), 5,513,681; Annamites in the towns and along the coasts, and various tribes of Moïs among the hills. Hué, the capital, has 50,000 inhabitants; Bin-Dinh, 74,400. The educated classes follow the doctrines of

Confucius, but Buddhism is tolerated. There are 420,000 Roman Catholics. There are five secondary schools, with 23 teachers and 596 pupils. The country is naturally divided into a narrow littoral, habitable and cultivable on one side, and a wild, sparsely populated hill-tract stretching to the Mekong on the other. The Phanrang River has been utilized to irrigate about 10,000 acres, and similar works, on a smaller scale, have been carried out in the central regions. The productions are rice, corn, mulberry, cinnamon, tobacco, sugar, betel, manioc, bamboo, excellent timber, rubber, cardamoms, coffee, dye, and medicinal plants. About 300,000 kilos of raw silk are annually produced, one-third for export, the remainder for home manufactures. Coal mines are worked by natives at Nongson; iron, copper, zinc, and gold in the province of Quang-nam. There are salt works in several provinces. The imports and exports are included in those of French Indo-China (q. v.). At Tourane, in 1906, 28 vessels of 24,290 tons entered, and 21 of 17,032 tons cleared. The King, Duy-Tan, born 1899, succeeded to the throne September 9, 1907, on the abdication of Than-Thai, his father; he is under the control of a council of regency. Annamite functionaries, under French control, administer all internal affairs. French troops occupy part of the citadel (Mang-Ca) of Hué. The French Resident-Superior was (1909) J. H. Groleau.

ANNIVERSARIES See CENTENARIES and ANNIVERSARIES.

ANTARCTIC EXPLORATION. See POLAR RESEARCH.

ANTHOCYANIN. See BOTANY.

ANTHROPOLOGY While *Pithecanthropus erectus*, formerly viewed as a Tertiary precursor of man, has been relegated to Quaternary times as a result of recent geological investigation, the solution of man's phylogeny has been materially advanced by several new finds. With the original Neanderthal skull, subsequently allied with the skeletal remains from Spy and Krapina, anthropologists now class a skull from Le Moustier in the Dordogne, the skeleton discovered in August, 1908, by MM. J. Bouyssonie, A. Bouyssonie, and L. Bardon, and the remarkable lower jaw found by Dr. Schoetensack near Heidelberg. In August, 1908. Messrs. J. and A. Bouyssonie and L. Bardon discovered human remains while exploring a cavern near La Chapelle-aux-Saints. Geologically, these were found to belong to the Middle Pleistocene period, while their morphological character allied them with the well-known Neanderthal type now commonly referred to as *Homo primigenius*. Judging from the cranial sutures, the jaws, and the bones of the extremities, M. Boule inferred that the skeleton belonged to an aged male individual barely 1.60 metres in height. The tremendous lower jaw, the lack of a chin, the nearly circular orbital cavities and the very wide nasal apertures, all indicate a very primitive type of humanity. At least of equal importance is a mandible discovered in October, 1907, in a sand pit near Heidelberg and recently described by Dr. Schoetensack, one of the most interesting finds made within recent years. While the majority of the concomitant mammalian fossils belong to the oldest

Quaternary epoch, the presence of *Rhinoceros etruscus* and a variety of horse intermediate between *Equus Stenonis Cocchi* and the Taubach type definitely indicate Pliocene times. The jaw is accordingly the oldest of human remains hitherto found. Morphologically, the find presents extraordinary features. It lacks a chin—a specifically human characteristic—and the dimensions of both the body and the ramus are quite out of the ordinary. Were the teeth lacking, the jaw might have been attributed to an anthropoid ape, a part of the symphysis suggesting a gorilloid type, while a fragment of the ramus points to a large variety of gibbon. The dentition, however, is unmistakably human. The canines show no trace of over-development as compared with the other teeth, and the size of the teeth generally is exceeded by those of some living Australian aborigines. The molars present indications of five (instead of four) cusps, a condition approximated to some extent by the modern Australians. The Krapina skull shows a later stage in the development of the teeth and the jaw. While the latter is so huge that beside it even the celebrated jaw of Spy seems of moderate proportions, the teeth, as already noted, show relatively slight development. Though there was ample space for the growth of a fourth molar, even the third is considerably inferior to the first two molars. Compared with the Neanderthaloid mandibles of La Nualette, Spy and Krapina, the jaw of *Homo Heidelbergensis* appears to belong to an older type, which has accordingly been characterized as pre-Neanderthaloid. A comparison with the jaws of the anthropoid apes leads Schoetensack to the conclusion that *Homo Heidelbergensis* must be conceived as a generalized pre-anthropoid type as well. That is to say, it represents a form from which both modern men and the anthropoids have differentiated by specialization in different directions. This interpretation thus rehabilitates the theory of Klaatsch that man, in spite of his close morphological kinship with the anthropoids, is not directly descended from them, but rather forms a relatively new simian type ancestral to both *Anthropoidea* and *Hominidae*.

NORTH AMERICA. In connection with the Hudson-Fulton celebration, the American Museum brought together a series of papers clearing up the archaeology and ethnology of the North American aborigines formerly residing in the vicinity of Manhattan Island. It appears from Mr. Skinner's summary of these investigations that the prehistoric condition of these natives was essentially of Algonkian type, somewhat influenced by Iroquois contact, and in complexity superior to the culture of the simpler New Englanders, yet inferior to Iroquois culture. An important contribution to the hitherto little-known Southeastern culture area of North America has been made in Dr. Speck's monograph on the Yuchi. The Yuchi formerly occupied parts of eastern Georgia and South Carolina. While linguistically distinct from any other stock, they belonged politically to the Creek confederacy, which they joined about 1729 in order to save themselves from hostile encroachments of the Muskogian tribes. The social organization of the Yuchi is marked by the co-existence of exogamous totem clans of which the membership is inherited through

the mother with patrilineal chief and warrior moieties embracing the entire male population. The members of a clan refrain from injuring their totem animal, which, in turn, becomes each clansman's protector at the time of his puberty initiation. Four of the clans enjoy special prerogatives, inasmuch as membership in them is prerequisite to eligibility to the highest tribal offices. In the ball game, the players are divided into sides by moieties; there is also a difference in mortuary painting and a differentiation of ceremonial functions. The most important political unit, however, is the Yuchi town, in which citizenship was determined by birth. The centre of the town is a square plot of ground, with sides facing the cardinal directions and a central fireplace; on ceremonial occasions, officers and members of the moieties seat themselves in a definite way along the sides. The square symbolizes the rainbow and is decorated with paint, colors and vegetation in accordance with this conception. On this plot the great annual festival was celebrated at the time of the ripening of the corn. The ceremony lasted several days, part of which time the adult participants were obliged to fast. New fire was publicly kindled in the square by the town chief, and each participant took an emetic as a preventive of sickness. These rites are especially significant as suggesting a connection with the ceremonies of the Southeastern culture area of North America.

The Assiniboine, representatives of Northern Plains culture, have been described by Dr. Lowie. Linguistically most intimately related to the Yankton Dakota, they have been closely associated with the Cree for two centuries, and thus present an instance of the confluence of two cultural streams. Cree influence is especially obvious in Assiniboine mythology, into which numerous episodes common to several Algonkian tribes have been incorporated. The social organization seems to have been rather on the basis of bands than on that of exogamous clans. A body of soldiers acted as the police force of the camp, but was not connected, as in several other Plains tribes, with a system of age-societies. There were, however, a number of military organizations closely resembling in single features the ceremonial age-classes of the Arapaho. Discussing these, Lowie arrives at the conclusion that two entirely different types of age-societies must be distinguished within the Plains area: the feasting age-classes of young men, middle-aged men, and old men of the Omaha; and the ceremonial age-groups of the Western Algonkian and Upper Missouri Indians. The societies of the latter do not seem to correspond to natural divisions by age, so that some other factor of as yet problematic character must be supposed to enter. As for the ceremonial traits of the age-societies, they do not exhibit a clear differentiation from ceremonial organizations ostensibly based on community of supernatural revelations. The police functions exercised by age-societies seem to be only secondarily associated with them, as precisely the same disciplinary powers are wielded by other social units in other tribes, and corresponding conclusions are reached with respect to such traits as the foolhardiness and clownish behavior obligatory on members of certain organizations. The study of age-societies must accordingly resolve itself into tracing

the diffusion of well-marked single elements and discovering their various combinations in the several tribal groups.

Of the Plateau people, the Shoshone have also been studied by Dr. Lowie. On the basis of traditional lore, mythology and historical data, he arrives at the conclusion that the Shoshone were not, as Brinton assumed, ancient inhabitants of the Plains. The development of fishing and the chase for small game, the old type of grass-lodge, the weaving of sage-brush bark, the simplicity of their social and ceremonial organization, the absence of tales about the buffalo and the mythological importance of the coyote and wolf, all tend to establish a closer affinity with the culture of the Plateau and Californian regions. The Shuswap, another Plateau tribe, have been described by Teit. Their culture is essentially similar to that of the Thompson River Indians, but in the western and northern portions of the tribe a typical contact phenomenon has been observed in that these sections have adopted the organization of the Carriers and Chilcotin with its tripartite division of society into nobles, common people, and slaves.

In the southwest, Dr. Fewkes has completed his investigations of "Spruce-Tree House," one of the Mesa Verde antiquities of Colorado. The village stands in a recess protected above by an overhanging cliff. It contains over a hundred rooms, partly secular, partly ceremonial, the former being rectangular, the latter circular and subterranean; in places the House was three stories high. The walls were built of stones generally laid in mortar, but sometimes piled on one another. Architecturally, the cliff-dwellings excel Pueblos of more recent construction. The ceramic art is on a level with that of other southwestern peoples, but is less symbolical. While the inhabitants of Spruce-Tree House have a general cultural resemblance to the Pueblo, the absence of marine shells, turquoise ornaments and obsidian flakes indicates that they were not on intimate trading terms with their neighbors.

Intensive linguistic work has been carried on in North America by Drs. Swanton, Sapir and Goddard, who have published collections of myths in the original Tlingit, Wishram and Kato languages respectively. The *Handbook of American Languages* has not yet been issued from the government press, but has reached the page-proof stage.

SOUTH AMERICA. In South America, Eric Boman has carefully reexamined the much-discussed Calchaqui question. He finds that the Calchaqui constituted but a single tribe of the Diagita stock, the territory of which extended between Araucania and the Argentine Republic. The Calchaqui proper occupied only the western frontier of what is now the Province of Salta. Prehistoric remains are very numerous in the Diagita area. There are many remnants of walls, monoliths, and large stone-heaps. The pottery, while of inferior craftsmanship, reveals the Peruvian style of decoration; funeral urns are very prominent; some of them serve as coffins, enclosing, as a rule, the bodies of infants. The use of coffin-urns was not found in ancient Peru, but is characteristic of the Tupi-Guarani of eastern South America and was probably derived from them. Clay tobacco pipes probably go back to the same

source. Apart from these influences, Boman finds the "Calchaqui" culture essentially related to that of Peru. While lacking in monumental edifices, the archaeology of the Diagita reveals the Peruvian type of everyday dwellings. The ceramic productions are identical in technique, form, and decoration with those of Peru; the conventionalized representation of puma and the occurrence of a distinctively Peruvian type of vase—the cone-bottomed aryballus—are especially noteworthy. While the most characteristic stone axes of the Diagita region occur but rarely in Peru, all the Peruvian forms are likewise found on Diagita sites. The copper objects, as well as the metallurgical processes, of the two territories are also in close agreement. To these indications of intimate contact with Peru, Boman adds the occurrence of Quechua place names, and, the basis of historical sources, the knowledge of the Quechua language by the Diagitas in pre-Hispanic times. Finally, the residual folk-customs and folklore of the half-caste Diagitas of to-day are clearly related to Peruvian observances and beliefs. While Boman thus connects the "Calchaqui" and Peruvian cultures, he strongly opposes Ambrosetti's theory that the Calchaqui are related to the Pueblos of North America on the ground that the analogies adduced in behalf of this assumption are inconclusive and that there are no traces of the supposed relationship anywhere in the immense region intervening between the two tribes. The hitherto little-known Jibaros of Ecuador have at last been reported on by Dr. Rivet. Among their cultural possessions he notes a throwing-board for poisoned arrows and a signal-drum audible for the distance of 15 kilometres; the shrinking of the mummified head trophies characteristic of the Jibaros is described as due to the application of hot stones. The natives of north-westernmost Brazil are being systematically dealt with by Dr. Koch; their secret societies, masquerade dances, and initiation ceremonies with flagellation rites are of special interest.

ASIA. Of the so-called pale-Asiatic tribes, the Chukchee have been described by Bogoras with regard to their social organization. The family forms the unit of organization, and there is a preponderance of paternal relationship. Families are grouped together into larger divisions called *varat*, which unite all individuals pledged to avenge one another's death. Among the Reindeer Chukchee the political unit is the camp, while among the Maritime Chukchee it is the village. The camp is usually very small, including but few houses, one for each family. There is a master of the camp, who occupies the front house. He orders the change of the camping-place and pasture-ground, and superintends the bringing in and slaughter of the reindeer, as well as ceremonial observances. In camps of rich men, the masters have assistants, who are sometimes treated with great kindness, may marry a relative of the master's, and even become the power behind the throne. In cases of necessity, neighboring camps usually lend one another a helping hand. The Maritime village is not based on relationship, but on territorial contiguity. There is usually a front house, occupied by the family that has lived the longest in the locality. Where no such house exists, all the inhabitants are on a footing of equality. The social unit of the Mari-

time people engaged in sea-hunting is the "boat-ful," consisting of the eight or nine men of the crew. The owner of the boat is considered master and occupies the helm. The most characteristic legal institution of the Chukchee is the vendetta. Each family is justified in killing an obnoxious member of their own number, but a murder outside the group is avenged by the relatives and friends of the slain individual. Minor crimes are usually punished by a compensatory payment, which is also, though more rarely, offered in case of murder.

In western Asia, Turkestan has been Dr. Stein's field of exploration. The inhabitants of Khotan in eastern Turkestan are found to be a non-Mongolian tribe, being somatologically related to the Indo-Iranian Galchas. Khotan was settled simultaneously by northwest Indians and by Chinese colonists. Most important among the recent finds are wooden tablets with Kharosthi inscriptions dating back to the third century, A. D. The use of wood points to ancient Chinese influence, which is further attested by the discovery of Chinese documents and coins. On the other hand, the seals of these wooden epistles bear clear evidence of classical influence, such as figures of Pallas Athene and Eros. Wooden tablets of Chinese origin are thus found inscribed in an Indian language and in conjunction with Græco-Roman seals.

The Orang Kubu of Sumatra have been investigated by Dr. Hagen. Physically, they comprise two types—a tall group with long and narrow heads, and a short group with relatively short and wide heads. The shorter people Dr. Hagen regards as more primitive and as related to the Senoi of the Malay Peninsula and Vedda of Ceylon. Culturally, the lack of bows, arrows and blowguns is a noteworthy feature; a wooden spear constitutes the principal weapon. Dr. Hagen contends that the Kubu represent the lowest of existing tribes, but Father Schmidt in a spirited review denies their primitiveness and accounts for the simplicity of their culture by the theory of degeneration from an even originally low level.

Studies in northwestern Luzon have shown Mr. Fay Cole the distribution of aboriginal tribes in this region. He recognizes four distinct tribes: Negritos, Igorots, Tinguian-Apayaos, and Kalingas. Of these, the Negritos have in every case adopted the language and, except in one subdivision, the culture of their neighbors, but stand as representatives of a distinct race. Of the remaining three divisions, the Igorots form a separate subclass. They also show the influence of recent contact and degeneration of older customs. A pristine exogamic institution has disappeared, and while a men's house for unmarried men and boys persists, the women's house of the Bontots exists only in memory. North of the Igorots is the great Tinguian belt. The Tinguian have extensive fields of rice, corn and tobacco, but are also ardent hunters. The gable roofs of their houses differ widely from the angular bell-shaped roofs of the Igorot dwellings. Exogamic divisions and men's houses are lacking, and women enjoy a higher social position. The Apayaos live in elevated one-room bamboo structures floored with rattan. In each village, one or more larger dwellings with roofs shaped like an inverted boat serve for the celebration of dances

and feasts. Agriculture is less highly developed than among the Tinguians, though considerable rice is cultivated. Head-hunting flourishes to a remarkable extent. The Kalingas have dwellings with two rooms, the floor being raised about three feet, though the sideboards extend to the ground. As no iron-work is done in this section, most of the spears are fitted with bamboo points. A long tapering shield with three prongs above and two below is typical of the country. Head-hunting seems to have a more religious motive than among neighboring tribes. Linguistically, the Kalingas, Tinguians and Apayaos are all rather closely related.

AFRICA. In East Africa the Nandi have been investigated by Hollis. The Nandi are a people related to the Masai and have probably developed from a mixture of Nilotic negroes with the Hamitic Galla and Somali. Their social customs are marked by elaborate puberty rites for both sexes and a pure form of totemism with exogamy and taboos against killing and eating the totems.

Some light is being thrown on the exotic origin of some features of West African culture. Balfour has discussed the distribution of the crossbow, which, as a serious weapon, is restricted to the Fan and Mpongwe tribes, and their immediate neighbors. The accepted theory is that the West African crossbow is a degenerate descendant of the elaborate appliance once used in Europe. Balfour draws attention to the fact that in a Norwegian village the whalers still employ a crossbow differing completely from all other European crossbows, but precisely similar to that of the Fan and Mpongwe in its release-mechanism and presumably going back to the same prototype. Crahmer, amplifying investigations begun in 1908, has argued that the art of Benin, irrespective of quite subordinate indigenous elements, represents essentially a hybrid Indo-Portuguese style, some of the figures being directly modeled on East Indian patterns. The introduction of the art was due to Portuguese colonial trade, and Portuguese, East Indian, or even German, casters were probably the metallurgical instructors of the aborigines.

In a preliminary report, Professor Starr has added to our knowledge of Congo ethnography. His measurements of the Batwa tributary to the Bakuba show that these supposed Pygmies are of rather greater stature than the dwarfish tribes of the Ituri forest; nevertheless, Starr inclines to the view that they belong to the same category on account of their exclusive dependence on the chase, their use of the bow and poisoned arrows, adherence to the palm-drill and fire-plow for fire-making, and their political subjection. Corresponding investigations of the more eastern Batwa lead Czekanowski to the conclusion that this generic term has been applied to anthropologically quite distinct peoples. The Batwa of the Ruwenzori are genuine Pygmies, light in color and about 4 ft. 9 in. in height, while the Batwa of the Lake Kivu district are simply small dark-colored negroes, averaging about 5 ft. 3 in. Linguistically, the Pygmies between the Ruwenzori and Uele are not at present differentiated from the Balese. Sociological researches into the other tribes of the region lead to the determination of a generally diffused totem clan

system with paternal descent, religious veneration for the totems, and strongly marked blood-feud customs. Contrary to accepted conceptions, Czekanowski did not find the pastoral Hamites predominating over a majority of agricultural Bantu in Uganda and Unyoro, but only in Ruanda.

OCEANIA. Australia remains the continent most eagerly studied in the interests of sociological speculation. Graebner, Foy, and—still more recently—Father Schmidt have outlined schemes of the probable evolution of social forms and customs. As representatives of the oldest "Nigritian" stage, Schmidt postulates the conditions of Tasmania and southeastern Australia, viz., sex-totemism with paternal descent and local exogamy without hereditary clan totems. This is supposed to have been followed by the "West Papuan" culture characterized by paternal descent and local totemism and exemplified by the Narrinyeri. Third follows the "East Papuan" culture of the two-class system with maternal descent; Schmidt distinguishes a southern and a northern subculture group, by whose contact there originated the four-class system. In central, southern, and a part of western Australia, Schmidt assumes a retroactive influence of the Western Papuan culture, effacing or modifying the two-class and four-class systems of the third stage, and establishing the worship of male ancestors and the introcision rite as a tribal initiation performance consequent on circumcision.

Father Schmidt has been equally concerned with the linguistic investigation of the South Sea area and has succeeded in finding more and more languages belonging to a non-Polynesian, "Papuan" stock. His most recent discovery in this line is that the inland inhabitants of Bougainville, one of the Solomon Islands, speak a Papuan tongue. On the basis of all his researches he postulates a pre-Austronesian, Papuan era in the South Sea. While the linguistic problems of Oceania have thus been attacked by Father Schmidt, Dr. W. H. R. Rivers has resumed discussion of certain sociological-religious questions arising from a study of this region. Rivers defines true totemism by three criteria: The connection of a class of animals, or objects, with a social division, which is generally exogamous; the belief in kinship between the members of the social group and the totem, which is usually regarded as the ancestor of the group; and the religious veneration shown to the totem, generally by tabooing its flesh as an article of food. Previous investigators had suspected the presence of totemism in Polynesia and Melanesia, but were opposed by Tylor, who denied its existence within this area. Rivers strengthens the former position by some original observations. He argues that in Fiji and Samoa there are remnants of genuine totemism, though the typical form of totemism with exogamy has disappeared. At the same time he does not believe that the deities now venerated by the Fijians and Samoans are the direct descendants of former totems, but that they are deified heroes incidentally connected with definite totem animals. On the Reef Islands Dr. Rivers found typical totemism inasmuch as the food taboos are there connected with exogamous groups, though these groups have names differing from those of the tabooed animals. The same institution occurs on Santa Cruz and

Vanikolo, where, in addition to the Reef Island features, the exogamous groups share the names of their totems. In the Solomon Islands, the special field of Rivers's researches, conditions are very complex and led Codrington, the foremost of previous investigators, to deny the existence of totemism, but Dr. Rivers insists on the presence of his three cardinal indications of genuine totemism. A point of the greatest interest within this area is the frequent association of several totems with the same social group. This may be accounted for by the fusion of two peoples with distinct totems or the transition from matrilineal to patrilineal descent with inheritance of the father's as well as the mother's totem.

A question of the greatest theoretical significance—the connection of American culture with that of the Pacific Islands and Southeastern Asia—has been recently re-opened by Dr. Graebner. The presence of skin capes, beehive-shaped huts and coiled basketry among the Fuegians, leads this ethnologist to assume a connection between the culture of this people and that of the ancient Australians. But it is primarily the northern and northwestern region of South America—the territory from Guiana to the Gran Chaco, including the domain of the most highly cultured aborigines, as well as the area of the Caribs and Arawaks—that seem to reveal an affinity with Melanesian and Asiatic culture. The Peruvian process of knot-dyeing is identical with "Ikatten" technique of India and Indonesia; the crutch-like grips of paddles, as well as the several types of paddle-blades, are homologous with Melanesian and Indonesian forms; the South American signal drums are similar to those of Africa and Indonesia; and the basketry shapes and techniques likewise resemble corresponding specimens from the same areas. These traits—joined, as they are, with numerous other suggestive parallels—cannot, Graebner contends, be explained either by convergent evolution or by the psychical unity of mankind: they must be accounted for by the theory of a cultural contact. In North America, the indications of such contact, though slighter, are nevertheless extant. Though to some extent obscured by effects of relatively recent intercourse with Northern Asia, two cultural areas, the territory of the Pueblos and the Northern Coast, exhibit a fair number of features characterizing the Melanesian "bow and two-class" cultures; and Dr. Graebner traces several of these traits through their hypothetical path of migration on the Asiatic side of the Pacific. Whatever may be the final estimate of Dr. Graebner's theory, his views are sure to excite lively discussion in the immediate future on the part of Americanists.

SOCIETIES, INSTITUTIONS, FIELD WORK. At the Winnipeg meeting of Section H of the British Association for the Advancement of Science, held from August 25 to September 1, under the sectional presidency of Professor John L. Myres, the progress of anthropological science was extensively discussed, special emphasis being given to Old World archaeology and Canadian problems. The United States were represented by Professor Franz Boas, Dr. G. B. Gordon and Dr. George G. MacCurdy. The American Anthropological Association held its annual meeting at Boston during Christmas week and re-elected Professors William H. Holmes and

George G. MacCurdy, President and Secretary respectively. Mr. F. W. Hodge remains editor of the *American Anthropologist*, but, owing to his new responsibilities in connection with the Bureau of American Ethnology, Dr. John R. Swanton has been delegated to assist him in his editorial work. The American Folk-Lore Society also met during Christmas week in conjunction with the American Anthropological Association. Professor Belden was elected President, while Dr. Peabody was chosen to replace Dr. Tozzer as Permanent Secretary. The society is endeavoring to extend the scope of its investigations so as to embrace the entire field of folk-lore, foreign as well as American. In accordance with this tendency, Professor Kittredge of the English Department of Harvard University has been chosen to assist Professor Franz Boas, the editor of the *Journal of American Folk-Lore*. The New York Ethnological Society, though continuing its monthly meetings during the academic year, has virtually become a publishing organization. In the course of the year it has added to its new series Volume 2, containing Sapir's *Wishram Texts*. The Anthropological Society of Washington (President, Dr. Walter Fewkes; Secretary, Dr. John R. Swanton) continues to flourish. Members report on their folk-lore in archaeology, linguistics and ethnology, and visitors are invited to give popular lectures illustrated with lantern slides. The organization of a new Alabama Anthropological Society must be of interest to all students of the series.

Important changes have occurred in the supervision of the two Federal institutions devoted to anthropological investigation. Professor William H. Holmes has resigned the chieftancy of the Bureau to assume the curatorship of the National Museum made vacant by the decease of Otis T. Mason. Professor Holmes's administrative duties devolve on Mr. Frederick W. Hodge, who receives the title of "Ethnologist in Charge."

During 1909 the Bureau issued *Bulletins* 38, 39, 41 and 42 embodying respectively: Emerson's *Unwritten Literature of Hawaii*, Swanton's *Tlingit Myths and Texts*, Fewkes's report on *Antiquities of the Mesa Verde National Park* and Hrdlicka's *Tuberculosis Among Certain Indian Tribes of the United States*. The American Museum of Natural History is maintaining two expeditions to the Southwestern culture area of North America, Dr. Goddard devoting himself to the Athabaskan and Dr. Spinden to the Pueblo tribes of that region. Under the auspices of the same institution, Mr. Harlan I. Smith visited the coast of British Columbia, Mr. Skinner resumed work among the eastern Cree and northern Ojibwa, while Mr. Wilson continued his researches into Hidatsa life. Dr. George A. Dorsey has set out for a second trip around the world in the interests of the Field Columbian Museum of Chicago. This institution, as well as American anthropology generally, sustained a severe loss in the murder of Dr. William Jones in the Philippines. Dr. Jones's work has been taken up by Messrs. Simms and Cole. The University of Pennsylvania sent out Dr. Sapir to study the language of the Ute, while investigations on Shoshonean dialects supplementary to his previous work were pursued by Professor Kroeber of the University of California. Dr.

Tozzer of Harvard has left to carry on archaeological investigations in Guatemala, and Professor Frederick Starr, of Chicago, is engaged in an ethnographical trip to Japan. The Peabody Museum Expedition to the headwaters of the Amazon, in the interior of Peru and Bolivia, has returned under the leadership of Dr. Farabee. Of foreign anthropologists, Dr. Pösch remains among the Bushmen of the Kalahari, Dr. Lehmann has been studying the archaeology and linguistics of Central America, and Doctors Thurnwald and Rivers have returned from the Solomon Islands. Dr. Jochelson has left the Aleuts and is turning his attention to Kamchatka. Professor Henry Montgomery of Toronto University continued his exploration of the prairie mounds and earth works in Manitoba and Saskatchewan.

ANTIGUA. A West Indian island, consisting, with Barbuda and Redonda, a Presidency of the Leeward Island Colony. Total area, about 170 square miles. Population (1901), 34,971. Sugar is the principal crop, and cotton is raised to a considerable extent. Both are exported, and also molasses, pineapples, tamarinds, and arrowroot. Imports and exports in the fiscal year 1908 were valued at £168,398 and £174,972 respectively; in 1908-9, £175,587 and £179,106 respectively. Revenue and expenditure for 1907-8 amounted to £50,620 and £46,968 respectively; for 1908-9, £51,502 and £49,964 respectively. The public debt, June 30, 1909, stood at £130,300. The capital is St. John (pop. about 10,000), which is also the seat of government of the Leeward Island Colony.

ANTIMONY. In 1908 only one lot of ore, the value of which was wholly or principally confined to the antimony content, was reported to the United States Geological Survey, as having been mined and marketed in the United States. This lot was mined from the Bloody Cañon mines near Mill City, Humboldt county, Nevada. The imports of antimony during 1908 were very large, though they were exceeded by both 1906 and 1907. The imports of metal and regulus amounted in 1908 to 8,089,915 pounds; crude antimony and ore amounted to 3,287,218 pounds, and the salts of antimony amounted to 623,125 pounds. The total value of all varieties of the production amounted to \$944,034. The prices in 1908 were low, compared with those of 1906-7, but they were nearer normal than in the latter years. In 1909 the market in antimony was very quiet. The only occurrence of any importance was the imposition by the government of an additional duty of $\frac{1}{4}$ of a cent per pound, making a total duty of $1\frac{1}{4}$ cents a pound. This was done with the intention of stimulating the production of American ores.

ANTIQUEARIAN SOCIETY, AMERICAN. A learned society organized in 1812, in Worcester, Mass. Its membership is elective and is limited to 175. Nearly all the famous historical scholars and writers have been members of the Society, which is strictly national in its scope. A library is maintained at Worcester, Mass., which is the headquarters of the Society, and in this there are about 100,000 volumes. It is one of the great libraries of the country for students of American history and allied subjects. It includes a very valuable collection of newspapers and manuscripts. The Society at

one time maintained a valuable museum, but the establishing of the Smithsonian Institution at Washington and other museums of like character made this superfluous, and the collections of the Society were transferred to the Peabody Museum and the Worcester Society of Antiquity. A considerable number of interesting historical works are, however, exhibited in the Society's building. The publications of the Society comprise two series, the *Transactions* and the *Proceedings*. The *Transactions* were established in 1820, and in them have been published some of the most important matters relating to the early history of the country. The *Proceedings* have been published regularly since 1849. In them are many papers and monographs of much importance. The issue for April, 1909, completed Volume XIX. of the series. A fund was completed in 1908 for the beginning of the erection of a new building for the Society. The cornerstone of the new library was laid in October, 1909, with a historical address by Charles Francis Adams, and a description of the building by President Lincoln. It will be ready for occupancy in October, 1910. The officers in 1909 were: President, Waldo Lincoln; Vice-Presidents, Samuel Abbott Green, Andrew McFarland Davis; Secretary for Foreign Correspondence, Franklin Bowditch Dexter; Secretary for Domestic Correspondence, Charles Francis Adams; Recording Secretary, George Parker Winship; Treasurer, Augustus George Bullock; and Librarian, Clarence Saunders Brigham.

ANTI-SALOON LEAGUE. An organization founded for the spreading of Prohibition sentiment throughout the United States. It began with the organization of the Anti-Saloon League in the District of Columbia in 1893. From this developed the national organization which was founded in Washington in 1895, mainly through the efforts of Bishop Wilson of the Methodist Episcopal Church. The purpose of the League is the federation of churches of every name with temperance societies and other organizations opposed to the liquor traffic and the concentration of these forces against the common enemy. It has no affiliation with political parties and works independently. The work of the League in 1909 will be found noted in the article PROHIBITION. The officers in that year were as follows: Officers (1907-1909).—President, Bishop L. B. Wilson (Methodist Episcopal); Vice-Presidents, Bishop G. M. Matthews (United Brethren), Father James M. Cleary (Roman Catholic), Rev. David J. Burrell, D.D. (Reformed), Bishop J. W. Hamilton (Methodist Episcopal), Rev. Frederick D. Power, LL.D. (Disciples), Rev. W. B. Crumpton, D.D. (Baptist), Judge Charles A. Pollock (Methodist Episcopal), Rev. Washington Gladden, D.D. (Congregational), Rev. William L. McEwan, D.D. (Presbyterian), Rev. J. C. Barr, D.D. (Southern Presbyterian), Bishop H. C. Morrison (Methodist Episcopal Church, South), Bishop William N. McVickar (Protestant Episcopal); General Superintendent, Rev. Purley A. Baker, D.D. (Methodist Episcopal); Recording Secretary and Secretary of Headquarters Committee, Rev. S. E. Nicholson (Friends); Corresponding Secretary, Mr. James L. Ewin (Methodist Episcopal); Treasurer, Mr. Foster Copeland (Presbyterian); Acting Legislative Superintendent, William H. Anderson (Methodist Episcopal); Assistant General Superintend-

ent, Rev. G. W. Young, D.D. (Methodist Episcopal Church, South); Attorney, Wayne B. Weber (Congregational); Chairman Headquarters Committee, Rev. Howard H. Russell, D.D. (Congregational); President Board of Trustees, Rev. Brooks Lawrence (Presbyterian). Publishing Headquarters, established 1909, Westerville, Ohio. Editor in Chief, Ernest H. Chenington.

ANTITOXIN. The value of antitoxin in diphtheria is so firmly established that little new work is being done with this particular serum, investigators devoting themselves to the wider field of sero-therapy and vaccine-therapy, and the intricate problems of immunity. Advances in this region of science will be noted under the title of **SERUM-THERAPY** (q. v.). One phase of antitoxin in administration, however, has received the anxious attention of many workers in this field, and this is the phenomenon known variously as anaphylaxis, hypersusceptibility or serum disease—a condition of sensitization produced in certain individuals after the administration of a dose of antitoxin, so that a second injection given within a variable period of time brings on a profound toxemia, sometimes ending in death. According to the *Journal of the American Medical Association*, the exact nature of the reaction is, up to the present time, entirely unexplained. The phenomenon is not attendant solely upon the exhibition of diphtheria antitoxin, but may be produced by the injection of almost any soluble protein. The animal so injected becomes, after a period of ten days or two weeks, susceptible to a second injection of the same protein, so that this protein is now extremely toxic, and may cause death in a few minutes. Not all animals react alike in this respect; the guinea-pig is most readily sensitized and intoxicated, and sensitization seems to last throughout the life of the animal, and to be transmitted to the offspring. While some of the human cases of acute intoxication from antitoxin have occurred in patients who have apparently been sensitized by a previous injection of serum, yet in others the poisoning occurred with the first injection. It has been frequently noted, with regard to these cases, that the patient was afflicted previously with asthma, especially with "horse asthma"—in which the attack followed contact with horses; in other cases the individuals have shown an idiosyncrasy to eggs, or to some other protein food. It is therefore suggested that certain persons may become sensitized to foreign proteins by other means than injection, and possibly they are congenitally susceptible. Against these observations must be set the fact that serum has been injected twice into thousands of human beings at intervals of eight days and over (the period during which hypersusceptibility is supposed to be developed) either without any evidence of sensitization, or at most with only local reactions. In view of the enormous number of cases in which patients have received a second dose of antitoxin, without harm, it would seem that this serum should not be withheld, in cases where it is urgently needed, although indiscriminate prophylactic injections should be avoided. Besredka of Paris declares that the anaphylactic sequellæ can be modified, but not entirely prevented, by heating the serum to 56° C. for an hour on four successive days; that ether or chloroform narcosis confers complete but transitory immunity; and that the prophylactic injection of serum which

has been heated to 80° C. confers a sure and lasting immunity which is established by slow degrees after a slight reaction. He also asserts that the best way to prevent anaphylactic complications consists in the prophylactic rectal injection of serum, or the injection of a minute dose of the same serum under the skin, to induce the formation of an anti-anaphylactic substance.

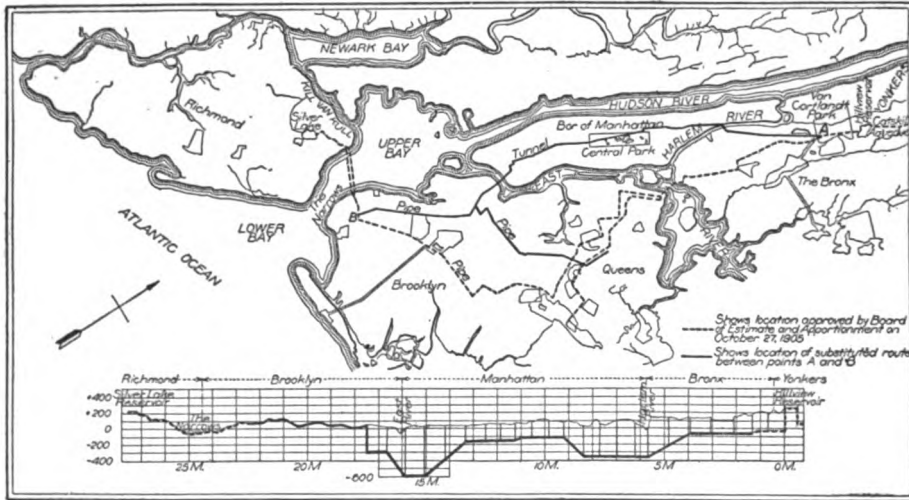
ANTI-VIVISECTION. See **VIVISECTION.**

AQUEDUCTS. During 1909 a further advance was made with the 240 mile aqueduct which the city of Los Angeles, Cal., put under way in 1907, to bring water from the Owens Run in the Sierra Nevada Mountains. Not only will water be furnished for the industrial and domestic uses of the city, but for irrigating land in the immediate vicinity, while at the same time the fall is sufficient to generate considerable electrical power. The estimated expense of carrying out this huge undertaking was \$24,500,000, and the work was being carried on by the city itself, bonds being sold from time to time to meet the expense. The work, which was about one-third completed in 1909, was expected to be finished by 1913 and was designed to convey 280,000,000 gallons per day of 24 hours, or enough for a city of 1,000,000 people, and for the irrigation of 75,000 acres of now unproductive land contiguous to the city, besides supplying power to a large hydro-electric plant. The work was being undertaken under exceptionally difficult circumstances, as much of the route lay either in desert or rugged and inaccessible country so that a railway 120 miles in length had to be constructed for supplies, local reservoirs built for water and power, and finally a large municipal cement works established at Tehachapi at a cost of \$400,000 to supply the 1,180,000 barrels of cement needed in the work. In addition to the railway, freighting is done with caterpillar engines. A complete telephone system over the 250 miles of line connects the chief engineer's office at Los Angeles with every division. As fuel is extremely expensive along the line, use has been made of electric power wherever possible and three hydro-electric stations were constructed which distribute some 3000 horse-power along 160 miles of the line, hydraulic dredges, power shovels and tunnel equipment being electrically driven. The aqueduct is composed of 22 miles of canal, 152 miles of cement-lined conduit, 29 miles of tunnel through rock and earth, 14 miles of steel siphons 8 to 10 feet in diameter and 2 miles of flume, or a total of 218 miles which, with 22 miles of reservoir, makes up the total length. The excavation was estimated at 8,500,000 cubic yards of loose earth and rock and the consumption of 23,450,000 pounds of steel in addition to the 1,180,000 barrels of cement mentioned. In 1909 work was in progress in six faces of the 28,860-foot Elizabeth tunnel through the crest of the Coast Range Mountains. On December 31, 1909, the total tunnel excavation was reported by the engineering departments of the Los Angeles Aqueduct as 157,121; of conduit excavation, 180,254; of tunnel lining, 52,456, and of conduit lining, 122,396.

In the excavation of the canal no work was attempted until the entire working plant and housing facilities had been assembled and thoroughly organized, the preliminary work taking until October, 1908. In that month one-half mile was excavated and this was gradually in-

creased until in April, 1909, a working rate of about five miles a month was attained and was to be maintained until the completion of the work. The major part of the line consists of cement-lined conduit, the trench being excavated to the approximate size and shape for the 12 foot wide by 10 foot deep conduit, and then lined with monolithic concrete, after which a reinforced concrete roof is put on. The distributing point will be two reservoirs near the San Fernando Valley, 20 miles northwest of Los Angeles, which will be employed for regulating the distribution for irrigation during the dry season. At the end of the year some 5000 men were employed on this stupendous project and it was estimated that 80 per cent. of the cost would go for labor. In point of magnitude the new Los Angeles aqueduct with its 240 miles of length may be compared with the 122-mile water-supply system to bring water to New York from the Catskill water-shed. The construction of the latter, however, was estimated to cost \$167,000,000 as compared with \$24,500,000 for

pipe lines will extend to Staten Island under the Narrows and to the Borough of Queens. This plan was a substitute for one adopted in 1905, when it was determined to have a distribution system of cast-iron pipes passing under the East River and thence through the boroughs of Queens and Brooklyn to the distribution point. The tunnel at its commencement in Yonkers will be 300 feet below the surface and will then pass through the Bronx, Manhattan, and Brooklyn in solid rock for a distance of 17½ miles, the work being divided into 17½ sections averaging 4000 feet each. Each construction shaft will later be completed as an uptake shaft and connected to the present distribution system. The tunnel, which will be from 16½ to 11 feet in diameter, will be lined with concrete, and being overlaid by from 150 to 200 feet of sound rock will be both strong and water-tight, even under the high pressures to which it will be subjected. These uptakes of course will be connected with valves to the distribution mains and the shafts will be located as far as possible in



DISTRIBUTION SYSTEM OF CATSKILL AQUEDUCT. (From *Engineering Record*.)

the California project, and the engineering work, while difficult, not complicated with such factors as desert conditions, inaccessible mountains, and inadequate or impossible transportation facilities.

Active progress was made during 1909 on the actual construction work on the Catskill water supply for the greater city of New York and at the same time plans were completed for the distribution within the greater city, which were taken under consideration by the Board of Estimate and Apportionment. This part of the work involves all lines south of Hill View Reservoir, an equalizing basin near Yonkers into which the Catskill Aqueduct will empty, and consists of 17½ miles of deep-pressure tunnel and 16 miles of pipe line through which 520,000,000 gallons of water daily will be distributed to the five boroughs. Of this amount it was estimated that Brooklyn would require 100,000,000 gallons and Richmond 20,000,000, leaving 400,000,000 gallons for Manhattan and the Bronx. The proposed system consists of a pressure tunnel driven deep in the rock underlying the city and extending from the Hill View Reservoir, underneath Manhattan to Brooklyn at a point near the Atlantic Avenue station. From here

parks or open spaces where their construction will not obstruct street traffic nor their maintenance be interfered with by any present or future pipe or subway construction. The tunnel will have a capacity equal to thirty 48-inch pipes, while the cost, both of construction and maintenance, will be far less. Furthermore the supply thus delivered in lower Manhattan, Brooklyn and Richmond will be at a pressure sufficient to render unnecessary much of the private and public pumping in these boroughs caused by low-level reservoirs.

The proposition involves no more serious engineering than was being involved in the construction of the Catskill Aqueduct, especially those sections which were being built under Rondout, Walkill and Moodna valleys on the west side of the Hudson and under Croton Lake on the east, and in fact was of much the same nature as the proposed tunnel to cross the Hudson River. The plan was believed to have many advantages, one of which was that by constructing the tunnel from Manhattan to Brooklyn the latter borough could share in the Croton supply in the near future, before the final completion of the Catskill scheme, in case additional supplies were needed, while in the same way by the

immediate construction of the pipe line under the Narrows relief could be given to Richmond from the Ridgewood system of Brooklyn. Aside from this interesting proposal the work on the Catskill Aqueduct continued with vigor during the year and steady progress was reported from all sections where work was under way.

ARBITRATION AND CONCILIATION, INDUSTRIAL. The year 1909 was a period of very considerable readjustment of the relations of employers to employees. The preceding year had been one of more than average industrial peace, owing largely to the recognition by union labor of the futility of attempting to better wages or hours during a time of industrial depression. But with the revival of trade the demands for new agreements became numerous and insistent, and led both to an unusual number of strikes (q. v.) and to a very considerable resort to conciliatory methods. These latter were employed especially in those industries in which the interests of the public are greatest, namely, transportation and the mining of coal. Under the Erdman act of 1898, which provides that, in case of dispute between a common carrier and its employees, the United States Commissioner of Labor and the chairman of the Interstate Commerce Commission shall endeavor by mediation to settle the difficulty, Charles P. Neill and Martin A. Knapp sought to terminate the strike of the firemen on the Georgia Central Railroad and that of the switchmen on the northwestern roads. They failed, but under the further provisions of that act, that in case of such failure, each party to the dispute shall, if he please, choose an arbitrator, and these two a third to constitute a board of arbitration, the former strike was settled and the latter was being negotiated at the end of the year. See **STRIKES**.

In the anthracite coal industry the three-year agreement expired on March 31, 1909. The operators offered to renew for three years more the agreement, which the Roosevelt Strike Commission had formulated in 1902. The workers, represented by the United Mine Workers of America, demanded the recognition of the union and the closed shop, the collection of members' dues by the company, an increase in wages, a reduction of hours, and an agreement for one instead of three years. To these points the operators answered that they could not recognize the union, because it was controlled by the bituminous miners; that increased pay would necessitate a raise in prices, which was impracticable; that to reduce the working day from nine to eight hours would increase the cost and reduce the output. After several months of consideration, during which there were several miners' conventions and numerous conferences between the representatives of the two parties, during which the miners had ceased work and the operators had given definite notice of a lockout, if the agreement were not signed, a new three-year contract was completed on April 29. The terms were: (1) The payment for new work at rates not below those paid for old work of a similar kind; (2) the posting of union notices and the collection of dues on the company's premises; (3) the right of appeal in the case of an employee discharged for being a member of a union; (4) the consideration of disputes at the colliery by the foreman and the mine superintendent before taking them to the conciliation board; (5) the issuance

by the employers of statements showing for each employee his own name and that of his company, the colliery where employed, the amount of wages, and the class of work performed. The union was not recognized, the agreement being signed by officers of the union not as such but merely as representatives of the miners.

ENGLAND. The use of conciliatory methods in Great Britain has increased greatly in recent years as a result of the stronger positions of the trade unions and growing public demand for the settlement of differences without inflicting undue injury upon consumers. Trade agreements now universally include provisions for conciliation boards made up of representatives of the two parties; moreover, both by legal enactment and by repeated practice, it is becoming more and more usual, in case the conciliation board shall not be able to agree, for the matter to be submitted to some distinguished personage for arbitration, his award being binding upon both parties. In this latter manner differences between the employees of the London and North-Western Railway Company, of the Great Northern Railway Company and of the Great Eastern Railway Company and these companies were settled for periods of three and four years, numerous points of wages and hours being dealt with. The introduction of the Coal Mines Regulation Act of 1908, providing among other things for an eight-hour day, went into effect July 1, 1909, and necessitated a readjustment of the working agreements in all the coal fields of England, Scotland and Wales. The consideration of differences was carried on in the various fields throughout the year, being attended by numerous cessations of work, threatened lockouts and the voting of two general strikes by the Miners' Federation. Nevertheless conciliatory methods were successful in every case, without a full test of fighting strength. Notable new agreements for conciliation boards were made by the men and operators of the London County Council Tramways, and by the masters and men in the cotton industry of the Lancashire district.

ARBITRATION, INTERNATIONAL. In the opinion of students of international law and of those interested in the cause of international arbitration, the most important development of 1909 was the action of Secretary of State Knox of the United States in recommending to certain of the Powers that the proposed international court of prize should be given jurisdiction to decide questions involving other matters of international dispute, thus establishing an International High Court of Justice, for which, in principle, the second Hague Conference voted unanimously. This action of the American Secretary brings the question into the arena of active discussion and consideration on the part of the countries addressed, and to that extent, at least, will advance the cause of a permanent High Court of Justice. The fact that the Hon. Elihu Root, as President of the American Society of International Law, devoted his last annual address to a discussion of the relations between international tribunals of arbitration and the jurisdiction of national courts affords further evidence of the growth of practical interest in the question. In concluding his address, Senator Root declared that the "better rule would be to avoid the danger of denials of justice, and to prevent the belief that

justice has not been done, which must always possess the parties defeated in a tribunal suspected of partiality, by submitting in the first instance to an impartial arbitral tribunal all such cases as are liable to be affected by the considerations I have mentioned."

Next in importance was the decision of the Hague Tribunal of the vexing Casablanca incident, which had been referred to the Court by France and Germany, the countries involved. This controversy grew out of the desertion and arrest in September, 1908, of six foreigners from the French foreign legion, and the alleged improper assistance given them by the German Consul. The Court, which was chosen to decide questions both of law and fact, consisted of Doctor Kriege and Mr. Fusinato, for Germany, and Professor Louis Renault and Sir Edward Fry, for France, with Knut Hjalmar von Hammar skjöld, of Sweden, as president of the tribunal.

The case was argued in May, 1909, and the judgment handed down on May 22 was in favor of France, But "couched in such forms as would be palatable to Germany." The award taxes the secretary of the German Consulate at Casablanca with a "grave and manifest fault" in endeavoring to embark upon a German vessel deserters from the French foreign legion who were not German subjects (of the several deserters in question three were German and three were not). While the judgment was not such a one as might properly be expected from a court of justice, because of the antiquity and obscurity of the language used, nevertheless, as the editor of the *American Journal of International Law* has pointed out, "from whatever standpoint the award be considered, it is a great and notable international event because France and Germany have presented to a court of international arbitration a military question in which honor and vital interests are supposed to be peculiarly involved. War might easily have resulted, but the work of the first conference and an enlightened and insistent public opinion have forced the greatest of military powers to resort to arbitration for the peaceful settlement of international differences, which diplomacy had failed to adjust."

Both countries promptly accepted the sentence and the findings of the Court and joined in issuing the following formal statement (May 29): "Whereas the Imperial German government and the government of the French Republic agreed on November 10, 1908, to lay before a court of arbitration assembled for the purpose all the questions arising out of the occurrences which took place at Casablanca on September 25, 1908, and whereas both governments undertook to express mutually their regret at the action of their officials in accordance with the decision on the question of fact and of law which should be reached by the arbitrators, and whereas the court of arbitration at The Hague on May 22, 1909, recognized and announced the following:

"The Imperial German government and the government of the French Republic declare therefore each in so far as it is concerned that they express their regret for the conduct for which their officials are blamed in the award of the court of arbitration."

Another important precedent was the completion of the Swedish-Norwegian arbitration

of the dispute concerning the maritime boundary at the southern end of the border between the two states. The Grisbadarne Islands, a bank of considerable extent off the Koster Islands, are valuable as fishing grounds. They were claimed by both governments. The Hague Court awarded them to Sweden, Norway getting Skjoette Grund. The boundary, as determined by the tribunal, is practically coincident with the old Swedish frontier line. The settlement is valuable, from an international view-point, as increasing the prestige of the Hague Court, and as strengthening the habit of appealing to law in international differences, especially in the case of nations where strained relations exist or have existed.

The arbitration treaty between Sweden and Norway runs for ten years and provides for the reference to the Hague Court of all questions of a judicial order and those arising in the interpretation of treaties. Questions affecting vital interests and national honor are reserved, although the question whether a controversy really involves vital interests or national honor must be first referred to the Hague Court.

The Central American Court of Justice handed down its first decision December 19, 1908, in the case of Honduras against Guatemala and Salvador, the charge being that the defendants had been guilty of unneutral conduct in that they had fomented revolution in Honduras. The Court assumed jurisdiction of the case, notwithstanding that the defendants pleaded that diplomatic negotiations, a condition precedent, had not taken place. The judgment pronounced rejected the action against "the high defendants, without sentencing them to payment of the costs." It is generally conceded that the decision prevented war, and represents a substantial gain for the cause of international arbitration.

Peru and Bolivia referred their boundary dispute to the President of the Argentine Republic, who decided generally in favor of Peru. Bolivia, at first, was averse to accepting the decision, and its President attacked the Argentine President, which resulted in July in breaking off diplomatic relations between the two countries. Wiser counsels prevailed, however, and in September, 1909, Bolivia decided to accept the awards as a final and conclusive settlement of the controversy, Peru, through diplomatic negotiations, making a few concessions. Thus has been concluded what at one time seemed would be a failure of a case of international arbitration. The incident also furnishes a precedent in favor of submitting questions to be arbitrated to The Hague, rather than to individual arbitrators.

Great Britain and the United States, on March 4, 1909, exchanged notes, agreeing to refer to The Hague the long-standing and at times annoying Newfoundland Fisheries question. The Court is to be composed of five arbitrators chosen from the panel of the Court, one from each of the two disputing nations, and three from foreign countries. In this way what has been a menace to the friendly relations of the two countries has at last been put in the way of a peaceful and satisfactory settlement. The documents have been filed and the Tribunal is expected to meet in May, 1910. In the meantime, a *modus vivendi* between the countries has been agreed upon. President Taft, in his annual message to Congress, declared that the case is the first one involving such great

international questions to be submitted to the Hague Court.

Venezuela and the United States submitted to The Hague three of the questions which resulted in the severance of diplomatic relations in 1908. The cases are to be tried and argued early in 1910. The other arbitrations completed or undertaken during the past year are:

Mexico and France have arbitrated the question of the sovereignty of Clipperton Island, the King of Italy acting as arbitrator; Brazil and Bolivia have accepted the decision of an individual arbitrator in a boundary dispute; the United States and Chile have submitted to the decision of King Edward of Great Britain the Alsop claims controversy between them. The decision is pending. Chief Justice Fuller of the United States Supreme Court has undertaken the arbitration of a boundary controversy between Costa Rica and Panama; the Central American Court of Justice has received its second case, but was compelled to dismiss it for lack of jurisdiction.

At least twenty new treaties of obligatory arbitration have been concluded during the year between nations two and two, bringing the number up to ninety-five and the nations parties thereto to thirty-five. The United States has treaties with twenty-five nations. The treaties signed in 1904 have expired; but they have practically all been formally renewed for a further period of five years. One of the interesting treaties is the one with China, inasmuch as it recognizes its equality and its claim to a like treatment with other nations. Another equally interesting treaty is the one concluded with Austria-Hungary, one of the countries at the second Hague Conference which objected to the submission of a compromise provided for by a treaty to any legislative or internal body. The new treaty provides for just such submission.

Interest in the cause of international arbitration on the part of business men and business organizations continues its encouraging growth.

At the Mohonk Conference of 1908 the business men present, representing a long list of leading business organizations, unanimously adopted this resolution:

The men representing business organizations in various parts of the country recognize the fact that international arbitration as a substitute for war between nations is a potential proposition; that popular education should be encouraged as the best means to hasten the day of a World's Court of Justice; that the business men, being vitally interested in this, the greatest cause of humanity, feel it their duty to assume a large share of the financial burden of this educational campaign. They appreciate, further, that they should give time and serious thought to the problems confronting those who are now engaged in the international arbitration movement.

The American Peace Society has formulated a concrete programme of effort, of which the following are the more important planks: 1. A world treaty of obligatory arbitration. 2. The establishment of the Court of Arbitral Justice provided for by the second Hague Conference and awaiting only the appointment of its judges under some form of international agreement. 3. (a) A protest against further increase of the United States navy as unnecessary for our protection and as tending to aggravate the rivalry of the nations in building costly arma-

ments. (b) The leadership of the United States government in an effort to bring about by international agreement a limitation and reduction of armaments. (c) As a preliminary step to this end, the appointment of an official national commission to study the question of armaments with a view to a practical international discussion at the third Hague Conference. 4. Appropriations by the national government for the promotion of international hospitality and peace. 5. Regular periodic sessions of the Hague Conference for the discussion of the common interests of the nations.

Among the many encouraging events of the past year making for better international understanding and relations may be noted the Declaration of the International Naval Conference of London, whereby many technical causes of past international disputes have been removed; and the International Prize Court provided by the Hague Conference of 1907, established on a working basis; the peaceful outcome of the threatening Balkan crisis; the signing in Washington of an agreement looking to the peaceful determination of all existing and future differences between the United States and Canada; the establishment in the American State Department of a Latin American Bureau, in recognition of the increasing international relations with our Southern neighbors; the continued and greatly increased international exchange of teachers; the establishment by the Interparliamentary Union of a permanent office whose final headquarters will be in the Palace of Peace at The Hague; the visit to England of the civic authorities of Berlin as guests of the City Corporation of London; the similar visit to Germany of more than fifty British clergymen; and the noteworthy reception by this country of the fifty distinguished representatives of the commercial bodies of Japan.

An International School of Peace has been established in Boston for the education of the people in behalf of "international justice and fraternity." Edwin Ginn of Boston has announced his intention to give to it \$50,000 a year and to endow it after his death.

The Second National Peace Conference held in Chicago May 3-5, 1909, was a great success in bringing together a representative gathering and in formulating the needs of further educational work to strengthen public sentiment for peace and international arbitration. Four of the addresses (those of Congressmen Tawney and Bartholdt, Mr. Andrew Carnegie and President Nicholas Murray Butler of Columbia) were reprinted in the *Congressional Record* under the authority granted by the House. They dealt with the general question of "The Mission of America in the Politics of the World."

The Congress brought together delegates from thirty-two States, mostly those of the Middle West and the South, and had a total membership of 560. A series of strong resolutions were adopted, including the following:

"Resolved, That this peace congress expresses its high appreciation of the action of our government in the recent conclusion of twenty-three arbitration treaties, and in the promotion of friendly relations between the various American republics. It recognizes with special satisfaction what was done by our government and representatives of the second Hague Conference in behalf of a general treaty of obligatory arbitration, a court of arbitral justice, the im-

munity of private property at sea from capture in time of war, and the establishment of a periodic congress of the nations, and in support of the proposition of the British government for limitation of armaments."

The publication department of the American Branch of the Association for International Conciliation published the following leaflets during 1909: *The Logic of International Coöperation*, by F. W. Hirst; *American Ignorance of Oriental Languages*, by J. H. De Forest; *America and the New Diplomacy*, by James Brown Scott; *The Delusion of Militarism*, by Charles E. Jefferson; *The Causes of War*, by Elihu Root; *The United States and China*, by Weiching Yen; *Opening Address at the Lake Mohonk Conference on International Arbitration*, by Nicholas Murray Butler; *Journalism and International Affairs*, by Edward Cary; *Influence of Commerce in the Promotion of International Peace*, by John Ball Osborne; *The United States and Spain*, by Martin Hume; *The American Public School as a Factor in International Conciliation*, by Myra Kelly; *Cecil Rhodes and His Scholars as Factors in International Conciliation*, by F. J. Wylie; *The East and the West*, by Seth Low.

The Nobel Prize for 1909 was awarded to Baron d'Estournelles de Constant of France and Auguste Beernaert of Belgium, being equally divided between the two (qq. v.).

The Fifteenth Annual Lake Mohonk Conference on International Arbitration met May 19 to 21, 1909. As in previous years the sessions were very largely attended by a representative group of delegates. The address of the chairman, Dr. Nicholas Murray Butler, outlined the progress made within the last few years and discussed the causes which threaten the world's peace at the present day, including the strained relations between Great Britain and Germany, based, in Dr. Butler's opinion, upon a misunderstanding of each other's motives. Among other recommendations the conference urged upon the American government its early initiative in the establishment of the International Court of Arbitral Justice, and a negotiation of a general treaty of arbitration between all nations.

The International Opium Commission convened at Shanghai on February 1, 1909. See CHINA, paragraphs on *History*.

An Ibero-American Institute of Comparative Positive Law has been organized at Madrid by a number of distinguished Spanish publicists and jurists occupying high professional and civic stations. Its principal objects are to "facilitate frequent and mutual communication between professionalists and juridical societies, to stimulate among the Ibero-American people the study of the juridico-social problems of present interest, seeking to unify or harmonize, so far as possible, their solution."

The Fourth Pan-American Conference will meet at Buenos Ayres in August, 1910. A tentative programme has been prepared by a committee appointed by the Governing Board of the Bureau of American Republics. The last conference was held in Rio de Janeiro in 1906.

The American Society of International Law at its third annual meeting, April 23-24, 1909, discussed "Arbitration as a Judicial Remedy: An examination of concrete cases actually submitted and decided by arbitration; how far they are of a judicial character and how far they have been governed by diplomatic convenience;" also,

"The Constitutional Powers which an International Court of Arbitral Justice Should Possess," the principal speaker on the latter topic being Senator Theodore E. Burton, of Ohio, who pointed out that the powers of such a tribunal would necessarily be limited at the beginning. "In a majority of the numerous arbitration treaties already negotiated questions of national honor and vital interest have been reserved from decision. With the growth of an international sentiment for peace and with an increasing confidence in the decision of the tribunal a larger number of questions would be withdrawn from the domain of national honor and vital interest and freely submitted to arbitration. Every factor which goes to make up modern progress and civilization will stimulate the desire for orderly and peaceable adjustment of international controversies."

Among the more important publications of the year is James Brown Scott's *History of The Hague Peace Conferences of 1899 and 1907* in two volumes. Dr. Scott, as solicitor of the State Department and as expert of the delegation to the second conference, is peculiarly well qualified for the task.

ARBITRATION, LABOR. See **ARBITRATION AND CONCILIATION, INDUSTRIAL.**

ARCHÆOLOGICAL INSTITUTE OF AMERICA. A learned society, founded in Boston in 1879 and incorporated by Act of Congress, 1906. Its purpose is to promote archaeological research by founding schools and maintaining fellowships, by conducting excavations and explorations, and aiding in those conducted by others, by publishing the results of archaeological research, by holding meetings for the presentation and discussion of archaeological subjects, and by maintaining courses of public lectures. The activities of the Institute have been extended to various fields of archaeological interest, especially Greek, Roman, Oriental, American and Renaissance. It has conducted excavations on the site of the ancient Assos in the Troad, and has aided in the investigations of the schools established under its auspices; it has also directed researches in the United States, Mexico and Central America. The Institute publishes *The American Journal of Archaeology*, which contains original contributions, reports and summaries of archaeological work in all parts of the world, and a bibliography of archaeological books. Four numbers are issued each year, together with a Supplement, which contains the annual reports of the Institute and of the schools. The schools under the auspices of the Institute are the American School of Classical Studies at Athens, established in 1881 and incorporated in 1886; the American School of Classical Studies in Rome, organized in 1895; the American School for Oriental Study and Research, founded in 1900; and the School of American Archaeology, founded in 1907. The Carnegie Institution of Washington supports a fellowship in architecture in the American School of Classical Studies at Athens, and grants \$1500 annually for excavations. The Institution also maintains two fellowships for research in the American School for Classical Studies in Rome and grants \$1000 annually for publication. The American School for Oriental Study and Research has done important work of exploration in Palestine. An effort is being made to raise money to pur-

chase a permanent building in Jerusalem, and the Institute has already contributed to this end. The School of American Archaeology directs all the researches of the Institute in the American field and affords opportunities for field work and training to students of archaeology. Excavations have been conducted in Colorado, Utah and New Mexico. A fellowship for study in Central America is maintained. The Committee on Medieval and Renaissance Studies promotes investigations and provides for lectures in mediæval and Renaissance archaeology and art, and the Institute maintains a fellowship in these subjects. The Institute is composed of twenty-one affiliated societies. The total membership is about 2000, consisting of life members and annual members. The officers in 1909 were: Francis W. Kelsey, President; Seth Low and John Williams White, Honorary Presidents; Charles P. Bowditch, Allan Marquand, George F. Moore, William Peterson, Edward Robinson, and F. B. T. Tarbell, Vice-Presidents; Mitchell Carroll, Secretary; and William Sloane, Treasurer. The Directors of the Schools of the Institutes are as follows: American School of Classical Studies at Athens, Bert Hodge Hill; American School of Classical Studies in Rome, Jesse Benedict Carter; American School for Oriental Study and Research in Palestine, Robert Francis Harper; School of American Archaeology, Edgar L. Hewett.

ARCHAEOLOGY. While 1909 saw no startling discoveries in the field of archaeology, the work in the various branches was carried on consistently in such a manner that many valuable data have been accumulated. On almost all of the sites mentioned in last year's report the work continued. In one or two instances certain places, as will be seen, have been cleaned up, and the excavations terminated.

MESOPOTAMIA. The German excavations at Babylon, November 1908-April 1909, have been in that part of the town now known as Merkes. In the course of the work a large part of the residential part of the city of the time of Nebuchadnezzar was laid bare, and some distinctly interesting private houses discovered. The upper strata, as already known, belongs to Hellenic times, and here on the walls of a house was found a painting. In the process of excavation terra-cottas, vases, and cups were found.

At Assur, where work has been in progress for a long time, diggings have been made in an east and west direction across the district of the former city. As a result, great monumental buildings, decidedly worth excavating, have been located.

The most noteworthy finds up to now have been a great number of private houses dating from Parthian, late, middle, and old Assyrian as well as archaic times. Those of the old Assyrian period are especially well preserved. Small objects of all sorts, such as vases, bronzes, and clay tablets, have been recovered in large numbers. An important find of late date is that of parts of Assyrian basalt columns, eight-sided, and some sixteen-sided. The eight-sided fragment is especially valuable inasmuch as it has an inscription on it dating in the eleventh century B.C.

SYRIA AND PALESTINE. At Gezer the excavators have discovered another cave-cemetery. It consists of a chamber about twenty-five feet

square and seven feet high, and in it were the remains of four persons. The most interesting of the finds consists of three specimens of a peculiar type of "Astarte-plaque." The face of the goddess is strongly marked and wears a veil with an embroidered border which covers the head and falls over the shoulders. The figure exhibits an abundance of ornament. An unusual feature is that each hand has six instead of five fingers.

Excavations on the supposed site of Jericho, near Ericha, and not far from the Dead Sea, have produced interesting results. The city wall was found to consist of a foundation of well-laid rubble, with larger stones at the bottom, upon which rested a wall of sun-dried bricks. Inside the wall was a doubly walled citadel and below this were the remains of about thirty houses in a good state of preservation. These houses faced on a narrow street. The site was occupied from about 2000 B.C. down to the beginning of the Christian era.

The recently published reports of the Harvard expedition to Samaria now make it possible to review the work done on this site. Near the village what was probably a Roman temple was uncovered, while on the citadel more important results were obtained. Here at a depth of thirty feet was found a massive wall which is probably of Hebrew date, while another cutting revealed two cisterns, a plastered drain and the remains of ancient buildings. At the top of the hill was uncovered an imposing staircase, originally eighty feet broad and still existing to the height of sixteen steps. In this neighborhood the excavators discovered a platform now about fifty-seven by twenty-seven feet. Below this were encountered remains of earlier walls. The only sculptures recovered were a Roman torso, probably of Augustus, and fragments of a large head. A few Greek graffiti and numerous fragments of Latin inscriptions were found as well as bits of painted stucco with Greek letters on them.

At Nazareth in Galilee an important discovery has been made. Under the church of the village have been found substructures of the ancient basilica, and among other objects were recovered five polygonal capitals which have on the four faces a number of allegorical scenes illustrating the evangelic narratives.

In an interesting article recently published P. Haupt holds that the Hamath, which was conquered by Tiglath Pileser III. and then settled with Assyrian colonists, was not, as is usually believed, the Hamath in Northern Syria, but that one located in Galilee. The colonists who were settled here were of Aryan stock brought from Media, and it is from these people that the later population of Galilee was descended. Although they were Jews in religion they were not in race. If this is true then Jesus and his disciples are to be considered as of Aryan and not Semitic descent.

EGYPT. At Abydos the Egyptian Exploration Fund expedition has excavated a temple of Thothmes III. lying between the temple of Rameses and the temenos of Osiris. Near Abydos Garstang has opened a number of fifth or sixth dynasty tombs which exhibit a mode of burial which has not yet been recorded. In the case of both men and women the bodies lie upon their backs with the legs crossed. The coffin was of wood and on the middle of the lid rested a large inverted shallow vessel of red polished

ware. The bodies were not mummified. In the coffin with them were frequently found a copper mirror, alabaster vases and small pots, as well as, sometimes, a number of copper implements.

The chief discovery made by Petrie at Memphis was that of the palace of Apries. This king is the Hophra mentioned in the Bible and was a contemporary of Jeremiah. The size of the palace can be appreciated from the fact that it measured about two hundred by four hundred feet, that it had a central court which was over one hundred feet square, and was elevated on a platform which rose about sixty feet above the plain. The halls were roofed over by beams of cedar. Of especial interest was the discovery, in a hole in the floor of a hall, of a silver bust of Hathor which weighed a pound. This was used as a strap attachment on a palanquin and gives some impression of the luxury of those who once dwelt in this palace. The temple of Merenptah, which was discovered last year, has now been partly cleared.

While waiting for Memphis to become dry enough to allow excavation to go on Petrie put in two months in the neighborhood of Thebes in examining the locality. On the top of the mountain was found a chapel for the apotheosis of the eleventh dynasty king, Sankh-ka-ra. Besides this find a group of concealed burials, one undisturbed, were discovered in one of the desert valleys. The coffin of the unmolested group was covered by a thin layer of earth and stones only a foot and a half in thickness. Around the coffin were offerings of personal ornaments, food, furniture, etc. On the mummy itself were found an electron girdle, a gold collar consisting of four rows of rings, earrings, and four gold bangles.

The Expedition of the Metropolitan Museum of New York City resumed its season's work at Lisht in November, 1908, by clearing the twelfth dynasty tombs in the cemetery at the side of the pyramid of Amenemhat I. In February the main programme was entered upon when the excavation of the causeway and temple of the pyramid of Sesostri I. was undertaken. The causeway which led from the river valley to the temple proved to be a roofed passage of limestone 2.60 m. wide with its side walls painted at the bottom to imitate red granite and decorated above with colored relief. Excavations on the site of the temple itself have made it clear that it conforms in general with the usual Old Empire pyramid-temples in being approached by a causeway which leads into an entrance hall which in turn leads into the colonnaded court. During the excavation of the temple much well-preserved colored relief came to light. In the Oasis of Kharga the expedition has continued its work on the Christian Necropolis and the ancient town of Hibis. This town was the residence of the Governor and the most important place in the oasis. Here the excavations have exposed several new streets and houses which were built on a rocky knoll. Finds of coins make it evident that the town was still inhabited as late as the close of the fourth century A.D. Among the most interesting of the finds on this site are a series of small limestone altars in the form of a column with a basin at the top for fire, and a group of plaster statuettes of which the most typical is that of a seated male figure. The drapery was colored.

At Meröe the discoveries by Sayce of remains of the Temple of Amon show a surrounding wall of dressed stone. The temple was approached from the east by a road which was flanked on each side by rams. On the site of the temple were discovered a life-sized royal statue as well as an inscription of King Axum, who apparently was the one who was responsible for the overthrow of the king of Ethiopia. The mounds at Meröe are as extensive as those at Memphis. From Messaurat en Naga Professor Sayce has recovered, he believes, the key to a partial decipherment of the Ethiopian writing.

Among the interesting objects of Egyptian provenance is a sketch book, dating in Greek times, which has recently been acquired by the Berlin Museum. The papyrus is divided by red lines into small squares and the figures are sketched in with red or gray and then completed in black. The subjects represented are a hawk-headed lion, a swallow, a rooster, a seated king, etc.

GREECE. The activity of the Greeks has been in two directions. Not only have they continued their wise policy of restoring their ancient monuments so far as the existing remains safely allow, but they have as well made a considerable number of excavations on various sites. In reference to the first field of their work it should be noted that the area in front of the Beulé Gate has been cleared and the approach to the Acropolis improved. On the Acropolis itself the restoration of the Erechtheion is completed and that of the Propylæia inaugurated. In the work on both of these buildings the American School of Classical Studies in Athens has contributed much. Outside of Attica the Greek Society has also been active. Much work has been done in restoring the temple of Apollo at Phigaleia, in the process of which terra cotta remains of an older building have come to light; the Hieron at Epidauros has been improved, and the so-called tomb of Clytemnestra at Mycenæ has been strengthened. In the matter of excavation should be mentioned first the work of the Greeks in the neighborhood of the Theseum in Athens. Last year a start had been made and this year's work has shown that the locality was used as a burial ground during the time that the temple was used as a church. As a result the earth has been greatly disturbed since ancient times. At New Phaleron Stais discovered the sanctuary from which the Echelos relief of the National Museum came. In Ætolia and Akarnania Soteriades has carried on work for the Greeks with the result in Koronta in southern Akarnania Mycenæan tombs have been discovered, in which were bronze and terra cotta ornaments. At Sounion Stais has continued his work of last year and found a very ancient temple with the base of the cult statue still in its original position. From the shore to the great temple was found a road with houses on either side. In the island of Naxos a number of tombs of the known Cycladic type have been located near Komiaki. In Thessaly a small temple has been found at Itonos, while in the Acropolis of Pthiotic Thebes early geometric pottery with white filled incision has been recovered. In Kephallenia twelve late Mycenæan tombs were discovered. They are rock-cut and the burial is the contracted variety found in the Cyclades. This find shows that

Mycenaean culture extended far to the west. At Samé in the same island were found seventy-two undisturbed pre-Mycenaean burials. At Pagasæ in Thessaly further research has brought to light five more towers, of the sort reported in 1908. One of these was filled for a space of thirty metres with grave stelai of the painted type recovered last year.

Crete has nothing spectacular to exhibit this year. At Knossos Evans discovered near the Royal Tomb a sepulchral chamber of stone dating in the Middle Minoan III. period—that is, about 1800 B.C. Among other objects found in the tomb should be mentioned an intaglio mounted in gold and showing a Molossian dog and two men, and a gold ring with four dancers analogous to those of the small frescoes of Knossos. In the small palace to the west of the great palace was found the lower part of an Egyptian chased vase dating probably no later than the thirteenth dynasty.

The discovery of an inscribed terra cotta disc, mentioned in the reports for 1908, has led the Italians to continue investigations in the neighborhood of its place of discovery, that is, near the palace at Phaistos. To the south of the great court on the western side of the palace were found remains of houses of Hellenistic date, while below them were discovered specimens of Kamarea ware. At the level of the court of the palace came to light a small cistern and an older well, both of which were of the time of the older palace. On the north-east slope of the Acropolis was uncovered a building with a portico which opened to the north. Opposite it is a flight of steps, eighteen in number, leading up to the eastern court of the palace. The portico dated in the latest Middle Minoan style. On a part of the Acropolis have been found potsherds dating from Geometric to Hellenistic times. Below these potsherds Minoan fragments have been discovered.

At Tylissos, which lies four hours west of Knossos, a settlement dating in the Minoan period has been discovered. Here, among other objects, have been found inscribed tablets and stone seals. Judging from the great pithoi, a bronze hydria, and a large bronze vessel found on the site, the settlement dates in the late Minoan I. or Middle Minoan III. period. Near Gortyn the same excavators, the Greeks, have begun to excavate a sanctuary the finds from which date chiefly in the second and third centuries B.C. A large number of terra cotta lamps and many clay figurines have been found. About two hours north of Gortyn the excavators have discovered a prehistoric site.

At Delos, where the French are engaged, the ancient quay and mole have been cleared. Finds of Mycenaean and Geometric pottery near the mole show the antiquity of the structure. The quays are much later in date, and belong in part in the Archaic and in part in the Hellenistic period. During an examination of the course of the Inopos a large cistern of late third century date was found. The basin was the source of supply for an elaborate system of canals. Besides this cistern a public fountain has been located at the northeast corner of the Stoa of Antigonos. The structure presented a hexastyle Doric façade, and was of wood faced with terra cotta. The date of the building is the early fifth century. On the evidence of an inscribed relief the fountain is

identified as the Minoan Spring. The temenos is now completely excavated.

At Olympia the German excavations have made it clear that the oldest remains on this site consist of a prehistoric settlement which extends from the Metroon under the terrace of the Treasuries. This terrace is artificial. The buildings of this early settlement are of the same apsidal construction as that of the buildings, reported in 1908, found last year near the Metroon. What, indeed, was supposed to be the Altar of Zeus is apparently only two such structures taken together. The settlement belongs entirely in the Neolithic age, and from the fact that it is covered by a layer of sand it is supposed to have been destroyed by a flood. Near Pylos have been recovered the foundation and some porous architectural members of the temple of Artemis Limnatis. From these can be drawn the reconstruction of the building. At Samikon some prehistoric monochrome pottery as well as Mycenaean ware has been found. Dörpfeld would call the site Arene. At Tiryns much has been done. In the southern part of the Upper Citadel remains of a pre-Mycenaean settlement came to light. This is characterized by the peculiar black-lustre ware. Under room xxx. (Schliemann, *Tiryns*, pl. ii.) were found six large pithoi belonging to this time. The buildings with their curved walls offer analogies with the early buildings found at Olympia. All around the citadel traces of the lower town have been found. From the finds it is evident that immediately below the citadel at the southern end was the older part of the town, dating from the black-lustre ware in prehistoric times, while the later part of the town, to the north, belongs in the late Mycenaean times. The succeeding Geometric period at Tiryns is represented by many tombs. At Leukas Dörpfeld believes he has found a building belonging to the palace of Odysseus.

The British School has just completed its excavations of the temple of Artemis Orthia at Sparta. The work in 1909 consisted in clearing up the outlying portions of the sanctuary. After removing part of the pavement in the centre of the arena of the Amphitheatre the English scholars found under it ashes and geometric potsherds which demonstrated that the worship of Artemis was much older than the structures on the spot would lead one to believe. Among the noteworthy archaic objects found are an ivory fibula plate representing Artemis with a snake, and a relief in stone showing two lions arranged heraldically. According to the excavators the latter may be a copy of the pediment of the sixth century temple from which two years ago a colored relief in porous showing a lion was recovered. A little below Sparta on the east bank of the Eurotas excavations have been conducted by the English on the site of the Menelaion, so-called. Here much pottery and many bronze ornaments were found which date for the most part at the end of the seventh century. This is a time scantily represented at the sanctuary of Artemis. Below these came Geometric fragments, and at a low level some Mycenaean potsherds. In a neighboring field were discovered remains of a Mycenaean pottery with frescoed walls. Near by Mycenaean pottery was found on the surface of the ground. All this affords proof of a Mycenaean as well as a Dorian Sparta; and it is likely that the older settle-

ment was at this place while the later was on the classical site.

In other parts of Greece the English have been active as well. At Rhitsóna, the site of ancient Mykalessos, Messrs. Burrows and Ure opened twenty graves and recovered as many as 2400 sixth century vases and figurines. These excavations are being exhibited at Thebes, grave by grave, so that an excellent opportunity for study is offered to students. In Thessaly the British school has opened two prehistoric mounds. In one of the mounds, that at Liano-kladi, three strata were discovered; the lowest showed a red-on-white ware, the next the characteristic black-lustre, and the top a coarse red hand-made ware, showing black-paint geometric patterns. In the other tumulus, near Kierion in western Thessaly, eight strata were noted. A long series of wares, including nine styles, were found, but here, as in the other tumulus, the red-on-white ware was early and succeeded by the black-lustre style. It is believed that the black-lustre ware, which is at home in Orchomenos and Tiryns, shows that these neolithic people who made the red-on-white style were invaded by those from the south who used the black-lustre style. This latter style does not last long and is succeeded by Mycenaean civilization. The dates for these tumuli are suggested as 1100-2500 B.C.

The American School is still engaged in its work at Corinth. The foundations of a Roman temple have been found near the marketplace. Outside the latter a part of the road to Sikyon has been made out. This makes certain that the old temple on the right of this road is that of Apollo, for here Pausanias noted this building. The theatre and the paved court between it and the Odeum, which was found in 1907, have been cleared. Most interesting of all, however, is the discovery of the channels of the fountain of Peirene, its surrounding court and the very early reservoirs and basins which probably belong in the time of Periander.

At Pergamon the Germans are continuing their work. Here Dörpfeld has begun the exploration of the temenos of Demeter and is continuing that of the Baths. At Ephesus under Heberdey the Austrians are at work in the valley between the Bülbül Dagħ and the Panyir Dagħ. Their efforts have been concentrated on the Odeum, which has been completely cleared. It is of the regulation Roman type. The so-called tomb of St. Luke has been excavated and found to be the lower part of a circular building of which the use is unknown. This served as a chapel in Christian times. Besides doing this work the Austrians have investigated the water conduits on the site. At Miletus the entablature and columns of the northeast corner of the temple of Apollo were found just as they had been deposited by the fatal earthquake which destroyed the temple. The frieze of the building is adorned with Gorgoneia more than three feet in height. On this same site baths and a Roman temple dedicated to Egyptian gods have been discovered. A bust of Helios was also found. The Austrian expedition to Lydia under Keil and Von Premerstein led to valuable results in the discovery of about three hundred and eighty inscriptions, some of which are in old Lydian characters.

Among the archaeological studies of the year one of the most interesting is that of Pomtow on Delphi. This scholar asserts that he has

identified the Treasury of the Corinthians with the structure which Homolle believed to be the base of the chariot dedicated by the city of Cyrene.

Under the foundations of the Treasury of the Sikyonians the same scholar uncovered the Tholos of Sikyon—which can be completely restored as a structure consisting of thirteen slender columns, without any inner wall, posed on a circular platform 6.40 m. in diameter. In front of the building was probably a small portal with four columns.

Another ingenious piece of work is that of Hill and Caskey, who have demonstrated that across the western end of the eastern hall of the Erechtheion ran a wooden beam supported by two struts which rested on corbels let into the north and south walls.

Still another interesting study is that of Dinsmoor, fellow of the American School in Athens, who has shown that the Propylaea of the Acropolis in Athens had a roof at a higher level over the east portico than over the main hall.

ITALY. In the Lucus Furrinae at Rome Gauckler has discovered a Syrian sanctuary dating in the first century B.C. From this it is evident that the Syrian cult was established at Rome at a much later date than is usually believed. In the course of the work, curious specimens of faience of yellow, green, and blue colors were discovered. They are surely of Babylonian or Chaldean origin and are the first instances occurring in a monument dating in the Imperial period. From the same excavations came an image which Gauckler thinks can be identified as that of the Syrian Atargatis. In the same grove has been found the dedication of the Temple of Jupiter Heliopolitanus.

In the Forum at Rome Boni has already explored the last two tombs belonging to the prehistoric necropolis. In them he found great jars which contained hut-urns filled with bones and ashes. These tombs are assigned to the eighth and even as early as the twelfth centuries B.C.

From a large number of tombs at Populonia, dating in the third and fourth centuries B.C., many objects have been recovered. From one tomb, that of a young girl, came a gold diadem in the form of olive leaves with a great rose in the middle, and a head at each end. Among the other objects recovered by the excavation was an excellent bronze statue representing the suicide of Ajax. At Ostia, in a street connecting with the Street of the Tombs, a sanctuary of Jupiter Sabazius has been recently discovered. This divinity is identical with the Phrygian Sabazis. In the same town a fine statue of Ceres was found.

At Pompeii, on private property and within two hundred yards of the place where the government is excavating, an exceptionally fine villa has come to light. It contains several rooms besides a large dining-room which is elegantly decorated. The paintings are of exquisite workmanship, and show a Silenus giving a drink to a thirsty man who bends eagerly before him, a reclining figure, which may represent Ariadne, and a Victory striking at a defeated woman for whom one companion intercedes, while another beats a pair of cymbals together.

On the island of Matya, off Sicily, a Phœnician settlement is being excavated. The walls uncovered are of two kinds, Cyclopean, and of

well wrought stones. Two massively battlemented gates and two stone staircases have been found. At the southern end of the island have been discovered what is apparently the harbor and a narrow channel leading out from it.

The Roman authorities have in hand an elaborate scheme, for which 600,000 livres were appropriated in 1908, for excavating the territory known as the "monumental zone." This zone comprises the space between the Arch of Constantine, the Porta Ostiensis, and the Porta Latina, and includes the Baths of Caracalla, and the declivities between the Coelian and Aventine hills. According to this scheme it is proposed to clear up the most ancient foundations near the Arch of Constantine, the Via Triumphalis, and to investigate the remains of the monument of Septimius Severus.

FRANCE. On Mt. Auxois, a sanctuary of Hygieia or Demeter has been uncovered. There are representations of a cock-fight as well as of other animals. At Mt. Guerin excavations have brought to light three fragments of Greek amphoræ, and so demonstrated the existence of commercial relations between this place and the Mediterranean. In the commune of Salins, in an *oppidum*, fragments of black-figured and red-figured Greek ware were found in conjunction with bronzes and other objects of the third Halstatt period.

SERVIA. At Vinca, on the Danube, excavation conducted by Vassits showed a series of strata, which, in the oldest exhibit anthropomorphic vases which resemble those of the second city at Troy, while the upper strata contained objects similar to those found on prehistoric sites in Hungary, Roumania, Bulgaria, Thessaly, and even Crete.

INDIA. At Takhti-Bahi, in the Peshawar Valley, Dr. Spooner found a stone of peculiar greenish color decorated on its four sides with scenes from the life of Buddha. The stone is pierced through the centre, and, evidently, was the pediment of a *Stupa*. According to Spooner a more perfect specimen from this cycle of the Mahaparanirvana does not exist. Near Peshawar, the same scholar also found a headless statue of a goddess with four arms. This number is unusual in Gandhara Art.

ARCHÆOLOGY, AMERICAN. See **ANTHROPOLOGY**.

ARCHITECTURE. The year 1909 can claim to its credit no specially forthstanding achievement in architecture, but rather a general progress in the art in all the countries in which large building operations have been general for some years past. Among European countries France, Germany and England have led in the amount, quality and importance of new constructions, with Austria and Italy following not far behind. The Low Countries and the Scandinavian kingdoms follow next, while Spain, Russia, Greece and Turkey bring up the rear. No European nation, however, can compare with the United States in the amount and cost of new buildings begun, completed or under erection during the year; and there are those even in Europe who consider the American work to stand first in quality as well as in amount, taken as a whole. This, however, is not by any means universally conceded, although the virility, versatility and originality of the work of the American designers is quite generally acknowledged.

In **EUROPE** one looks first of all to France for interesting developments in the year's output of architecture. The results there are somewhat disappointing. No very notable edifice has been begun or completed during the year. Among the most important enterprises under way has been the continuation of the work on the great Church of the Sacré Cœur on the Montmartre hill in Paris, by the erection of the great eastern tower over the domical Lady Chapel. This has been carried on under the direction of M. Lucien Magne, upon a design based in a general way on the sketches left by the late M. Abadie, the original designer of the church. At the end of the year the tower was about three-quarters finished. It is a dignified and superbly constructed work, worthy to complete what is, internally at least, the most impressive of modern ecclesiastical structures. The stained glass in the newer windows, in part the work of a son of M. Magne, marks an interesting and successful new departure in the use of broad, frank masses of strong color.

Except for a projected annex to the Ministry of Marine, for which a competition was held during the year, and the erection of an annex to the Crédit Lyonnais, by A. Narjoux, there has been little or no important work of a public character begun in Paris. The onward march of apartment-house building, however, goes on apace. Most of the houses betray the influence of the Art Nouveau movement, purged, however, of the extreme vagaries and extravagances that were common a few years ago. Bay-windows and heavily-corbelled balconies are frequent; the roof masses far more varied and picturesque than formerly, and the sculptured detail, especially of naturalistic flowers and foliage, often very beautiful. As a whole, however, these modern structures lack the charm and elegance often found in buildings of more conventional design.

While no very important public buildings have been under erection during the year, a very important and interesting structure has been in part demolished. This is the great Galerie des Machines, erected in 1889 at the rear of the Champ de Mars for the exhibition of that year—the finest, certainly the most elegant, of all modern metal-roofed halls of wide span. It is being removed to make room for two permanent exhibition halls of less unmanageably vast dimensions. Among other municipal enterprises should be mentioned the Boulevard Raspail, begun many years ago, but only recently carried on with vigor by the demolition of old houses in the southern half of the city. The past year has witnessed the virtual completion of this great new thoroughfare.

In other French cities there has been about the usual activity in the building of theatres, town halls, prefectures, courts of justice, schools and hospitals; among them the hôtel-de-ville at Roubaix, by V. Laloux, and the Post Office at Dijon, by Perreau. The city of Lyons is about to begin the erection of an immense stock-yard, cattle market and abattoir, covering many acres, for which the plans by Tony Garnier were exhibited at the Salon of 1909.

In the field of French architectural archæology, 1909 has had no very notable annals to offer. The Cathedral of Chartres has been undergoing careful restoration as to its wonderful North porch, the South porch having been thoroughly repaired and relieved of its long-dis-

figuring shorings in recent years. The little Romanesque Church of Morieuval, so important archaeologically in spite of its modest dimensions, has been stripped of the late and debased porch at the West End, which—so far, at least as appearances indicate—was originally without doors, its three arched entrances being entirely open to the exterior world. These restorations and others of less importance are being directed by M. Selmersheim, the accomplished architect of the Commission des Monuments historiques.

In GERMANY there has been about the normal activity in building, on the whole a stronger movement than in France. Particularly has the movement for municipal improvement assumed important dimensions. With great foresight, many of the German cities are planning, in advance, for the future development of their suburban districts, while others have held competitions for the remodeling of the older parts of the city proper. In the twin cities of Hamburg-Altona, the entire railway terminal system has been reconstructed and remodeled, a new *Hauptbahnhof* erected in each of the two cities, and new suburban stations, round-houses, freight-depots, etc., provided. The design of these is frank and expressive, in some degree elegant, though not quite attaining the highest possible merit in their class of design.

An interesting and thus far successful experiment is a vast coöperative store-building, in which about sixty merchants unite to exhibit and sell their goods. The building, on the Friedrichstrasse, is of reinforced concrete, and covers 93,358 square feet, or nearly 2½ acres of ground. It is architecturally far more interesting internally than externally, and cost 8,500,000 marks exclusive of the cost of the land.

At Munich a number of important new university buildings have been completed, chiefly for the Medical Faculty; an Anatomical Museum, by Heilmann and Littmann; a building for Psychiatry, another for research laboratories, etc. Of houses, villas, apartments, and shops, the year's production calls for no special notice.

Data for AUSTRIA indicate about the usual activity, with no important forthcoming work. A new Exchange for Trade and Industry (*Handels und Gewerbekammer*) is among the year's buildings in Vienna.

In GREAT BRITAIN the most notable architectural event of the past year was the opening of the newly completed Victoria and Albert Museum in South Kensington (London) in April by the King. This immense edifice has been nearly four years in building, from the plans of Sir Aston Webb, and affords ample and much needed accommodation for the constantly growing artistic and industrial collections of that celebrated museum. The architecture of the new building is, however, a little disappointing, both internally and externally. It is in excellent taste, refined and generally pleasing, but it hardly possesses the grandeur and interest which one might suppose its imposing dimensions would have permitted its designer to impart to it. New buildings for Birmingham University, by the same architect, with Mr. Ingus Bell, have also been completed during the year, and these two are the most important enterprises completed during 1909. The National Library of Wales, recently com-

pleted at Cardiff, and an important competition for the Middlesborough Public Library, indicate continued though moderate activity in a department of design which has never had in Great Britain the opportunities afforded in the United States by the unexampled multiplication of libraries during the past few years. Another branch of design in which American architects have achieved a certain success at home is represented in London by the monumental building completed in 1909 from plans by R. F. Atkinson for "Selfridge's," the new American department store on Oxford Street. Among other buildings completed or nearly completed in 1909 in London the Royal Automobile Club stands conspicuous, not only by its size and cost, but also because of its somewhat severely classical design in a rather cold and formal style rarely seen in London in recent years. Elsewhere, among many other buildings perhaps but little less worthy of notice, may be mentioned the Manchester Royal Infirmary by Reginald Blomfield, a very extensive group of hospital buildings; in Edinburgh, the new building (or rather one-half of the design) for the Edinburgh College of Art, and the beginning of a memorial chapel of very considerable cost and elegance on the east side of the south transept of St. Giles Cathedral by H. T. Oliver. Work has been continued on a number of important structures begun in previous years, among the most notable of which are the great Liverpool Cathedral; the new extension of the British Museum, by Mr. W. Burnett; the Queen Victoria Memorial in London, by Mr. Brock; the Wesley Memorial building near Westminster Abbey, and various buildings along the Kingsway. The new building for the London County Council has been begun, but had hardly risen to view above ground at the close of the year. A number of new buildings are being erected, or have been recently finished, at Oxford and at Cambridge, from plans by T. G. Jackson, R.A., and there has been a normal activity in the building of churches, schools and houses, in the first and last of which categories the English architects have continued to do much admirable work, hardly equaled, if at all, in any other country. An important British work, though not erected in Great Britain itself, is the Queen Victoria Memorial Hall, the erection of which was begun in Calcutta (India) from plans by Sir William Emerson.

The year has been marked by an increasing interest in the problem of architectural education and the opening of new courses in architecture in various centres, as in the Edinburgh College of Art and in Liverpool University, where, among other steps in advance, there has been founded a chair of Civic Art and Town Planning, whose first incumbent is Professor C. H. Reilly. A very active controversy as to the establishment of a curriculum in architecture at Cambridge University ended in the failure, at least for the time being, of the proposed enterprise.

In the field of archaeological restoration interest has been chiefly centred on Winchester Cathedral, whose foundations in a wet and springy soil have begun to give way after having apparently sufficed for nearly or quite eight hundred years. The difficult task of underpinning these foundations, of restoring the walls and piers, if possible, to the vertical,



THE NEW MUNICIPAL BUILDING FOR NEW YORK CITY

McKIM, MEAD, AND WHITE, ARCHITECTS

The historic City Hall is shown in the foreground

and of providing against further collapse, is under the general direction of T. G. Jackson, R. A., assisted by competent engineering experts.

In ITALY the most notable architectural features of the year have been the substantial completion of the vast Palace of Justice in the Castelli quarter of Rome, across the Tiber; and the very active continuance of work on the colossal Victor Emmanuel monument at the head of the Corso in the same city. The Palace of Justice is over-ornate in design, but, apart from its details, well composed and solidly constructed. The Victor Emmanuel monument, the crowning work of the late Signor Beltrami, stands on the slope of the Capitoline Hill overlooking the Corso, and consists of a colossal colonnade with projecting terminal wings, standing on a lofty podium or basement, and framing a colossal equestrian statue of the great king and warrior whom it commemorates. It is richly adorned with symbolic and allegorical sculpture, the halls behind the colonnade are sumptuously lined with precious marbles, and the cost will run up probably to nearly or quite \$15,000,000. The lesser Palace of Venice (the Palazetto) is to be demolished, as it obstructs the view of part of the monument from the Corso; but this interesting fifteenth-century palace is to be later reërected, stone for stone, on another site.

At Milan a great church to be dedicated to the Sacred Heart is in process of erection; at Bergamo the municipal improvements (great square, arcade, tower, etc.) announced a year ago were being actively prosecuted under Signor Quaroni's direction; and at Venice the great Campanile of St. Mark was carried up to a height of some 230 feet before the close of the year.

In other countries many important buildings escape the writer's notice through failure to publish them until (if at all) a year or more after their completion. As observed in a previous issue, there is a very considerable architectural activity in South America, of which no information reaches North Americans except by rare illustrated articles in the magazines. To a less extent the same is true of Canada, which might well support a fine illustrated architectural monthly, in which to exhibit the large amount of excellent work being done in the Dominion by both Canadian and American architects.

Before turning to the architectural record of 1909 in the United States we may add to the foregoing survey the completion of the Royal Palace at Laeken (Belgium) from designs by Ch. Girault of Paris; the extension of the Royal Palace at Brussels, by the late M. Maquet; in the latter city the completion of the large banking building of the Société Générale de Belgique and the inauguration of extensive municipal improvements by the cutting of wide streets through congested districts, especially those between the Royal Palace and the Cathedral of Ste. Gudule; at Copenhagen a new Royal Palace or château by Jorgensen; in Constantinople, under a new and progressive régime, the year has witnessed the completion and opening of an imposing new Post-Office building, the beginning of a new Custom House, the extension of the Museum of Antiquities, and the transformation of the superb Palace of Chérâgan on the Bosphorus into a Parliament Hall.

The enterprising East European capitals of Sofia (Bulgaria), Bucharest (Rumania), and Buda-Pesth (Hungary) were the scenes of a considerable building activity, but exact data are not available at this writing for compiling a precise record of it.

In the UNITED STATES, while the year's record was not extraordinary, it was one of very great and encouraging activity along all lines, showing complete recovery from the disastrous financial crisis of 1907. No feature of this activity is more noteworthy, and none as dramatically interesting, as that which marked the third year of San Francisco's phoenix-like revival from the flame and destruction of April, 1906. A very large proportion of the devastated city has been entirely reconstructed, and the year 1909 saw the completion of a great number of office buildings, churches and other edifices in a more substantial, fire-resisting construction than was to be seen before the earthquake and fire. It has been a remarkable exhibition of pluck, enterprise, and skill, with the one drawback that the opportunity was not improved for remodeling the street plan as proposed by Mr. Daniel H. Burnham.

In New York, the forthstanding architectural features of the year were the completion of the Metropolitan Life Insurance Company's tower-building, over 700 feet high, with 47 stories of offices, the highest inhabited building ever erected; the completion and closing in of the crossing or rotunda and choir of the Cathedral of St. John the Divine (Heins and LaFarge), so far as the main construction is concerned—the hemispherical dome on pendentives adding another element of incongruity and incoherence to this singular and heterogeneous edifice; the beginning of active work on the new municipal office building at the Brooklyn Bridge terminus (McKim, Mead and White); the advance towards completion of the Public Library Building (Carrère and Hastings) now receiving its interior finish; the rapid progress of work on the new Pennsylvania terminal at Thirty-first Street (McKim, Mead and White), which now begins to display its imposing dimensions and fine masses, a truly noble edifice; the completion and opening of the Queensboro' Bridge, a great cantilever bridge crossing from Manhattan to Queens over Blackwell's Island, with architectural features of decided interest designed by H. F. Hornbostel; the approach to completion of the Manhattan Bridge (Carrère and Hastings); the external completion of the striking group of Gothic buildings by Allen and Collens for the Union Theological Seminary; the completion of the vast Belnord apartment house (by Hess and Weeks); and of the new Police Headquarters (Hoppin and Koen); the opening of new and imposing Masonic Halls in Manhattan (by H. P. Knowles) and in Brooklyn (Lord and Hewlett), and the completion and opening of the beautiful New Theatre on Central Park West (Carrère and Hastings).

In Boston the completion of the great and beautiful new Museum of Fine Arts, a classic structure some 500 feet long, designed by Guy Lowell, was the most notable architectural event. It is the finest and largest single building thus far erected for art museum purposes in America, and compares favorably with the finest examples in Europe. Two important competitions were held, one for the Boston

Roman Catholic College, for which the prize was won by Maginnis and Walsh; and for the Peter Brent Brigham Hospital, for which the prize was awarded to Codman and Despradelle. In Philadelphia the great new Wanamaker store was carried well on towards final completion—a dignified and elegant design; and there was built in the same city for the United States Marine Corps, from designs by Rankin, Kellogg and Crane, an Equipment Store House of unusually interesting architecture in its successful adaptation of classic motifs to construction in brick and to the expression of its utilitarian purpose. The building activity in Chicago was well up to former records, but not exceptional, and excepting the new University Club, the completion of the new Chicago and Northwestern terminal, and a number of banking and office buildings, has no specially prominent building to its credit for 1909. Other railway stations may here be mentioned as of the past year: a great Union Station at New Orleans (Daniel Burnham), the new D. L. & W. Station at Scranton, Pa., begun in 1908 (K. Murchison), and the interesting terminal of the Hudson River Tunnels in the subterranean portions and part of the ground story of the Terminal Building in New York.

In Washington the two great office buildings for the Senate and House, which have been for some years building (Carrère and Hastings), were finally completed. At Pittsburgh work was begun on the great group of buildings projected for the University of Pittsburgh (H. F. Hornbostel), and the First National Bank completed, a striking and expressive design by Daniel Burnham. At Baltimore the Provident Savings Bank, by York and Sawyer, added another to their long list of successful banking buildings. Other buildings and projects to be credited to 1909, among a vast number which there is no room to mention, are the New York State Normal College at Albany (Ross, Heins, Ware); permanent buildings for the New York State Fair at Syracuse (Green and Wicks); new buildings and a new and coherent plan of architectural development for Princeton University; a long list of buildings at the various universities and larger colleges throughout the Union; and last, but of greater architectural interest and importance than all the foregoing, the beautiful though temporary buildings of the recent Alaska-Yukon-Pacific Exhibition at Seattle, Wash., for the special display of the resources and products of Alaska and the Northwestern and Pacific States. Howard and Galloway were the architects of the whole general design and most of the important buildings, which were as a whole remarkably successful.

During the year the use of concrete was widely extended, especially in combination with hollow tile and stucco for relatively inexpensive rural residences, many of them being made fireproof throughout. The diminution in our national timber supply and the increased and growing cost of wood have brought about a situation in which such construction in tile and concrete is but little more costly, while far more safe and durable, than ordinary framed construction in wood. The development of new and interesting types of house architecture appeared to be going on as a consequence of this change of materials. See CONCRETE.

The year was marked by the death, on Sep-

tember 14, of the most noted of modern American architects, Mr. Charles Follen McKim, to whom more than to any other one person the progress of architecture and the improvement of public taste in matters especially of monumental and public architecture in the United States are due. A designer of great and noble buildings and founder of the American Academy at Rome, he was a constant force working for the adoption of higher ideals and loftier conceptions in his chosen art. Another notable figure has passed away in the death of M. Auguste Choisy, author of works on the history of architecture which stand very high in the world of architectural scholarship. During the past year Mr. Norman Shaw, one of the most distinguished of living English architects, has withdrawn formally from the practice of his profession.

ARCTIC EXPLORATION. See POLAR RESEARCH.

ARGENTINA. A South American republic lying between Chile and the southern Atlantic coast. The capital is Buenos Ayres.

AREA AND POPULATION. The republic consists of 14 provinces, 10 territories, and the federal district (city) of Buenos Ayres, having an aggregate area estimated at 1,138,352 square miles. The census of 1895 showed a population of 3,954,911; official estimate of 1907, 6,210,428; estimate at the end of 1908, 6,484,023, of whom about 1,800,000 were foreign-born and 2,400,000 the children of foreign-born parents. The provinces having the largest populations (estimated) were Buenos Ayres, 1,647,029; Santa Fé, 816,401; Córdoba, 546,844; Entre Rios, 406,867; Corrientes, 319,386; Tucumán, 293,211; and Mendoza, 216,196. The most densely inhabited portions are the federal district and the provinces of Tucumán, Entre Rios, Santa Fé, and Buenos Ayres. The population of Buenos Ayres, next to Paris the largest Latin city, was estimated at 1,203,050 on May 30, 1909. The growth of this city, not only in population but in improvements of all kinds, has been extraordinary. It possesses one of the finest systems of docks and wharves in the world and has projected an extensive system of underground railways. Other important cities, with population according to latest available statistics, are: Rosario (1906), 150,686; La Plata, 80,000; Tucumán (1909), 66,917; Córdoba, 53,000; Bahía Blanca, 37,755; Mendoza, 35,314; Paraná, 27,000. In 1908 the over-sea immigration was 255,710, as against 209,103 in 1907; in addition there were 47,402 arrivals from Montevideo, making a total of 303,112, as compared with 257,924 in 1907. The emigrants in 1907 numbered 90,190; in 1908, 127,032. Of the immigrants in 1908, 116,069 received free transport to the interior and were located in small groups at 1010 different places. In 1908 the over-sea immigrants included 107,357 Spaniards, 78,947 Italians, and 6780 Russians; only 326 came from North America.

The total number of immigrants who arrived in Argentina from 1857 to 1908 inclusive was 3,178,456, of whom nearly 1,800,000 were Italians. Immigrants arriving in 1901-08 numbered 1,243,379.

EDUCATION. Primary instruction is free, secular, and nominally compulsory, but about one-half of the inhabitants over six years of age are illiterate. In 1906 the primary schools numbered 5941, with 557,657 registered pupils.



THE NEW BUILDINGS OF UNION THEOLOGICAL SEMINARY, NEW YORK CITY, IN COURSE OF ERECTION—THE LIBRARY
LOUIS E. JALLADE, ARCHITECT

Secondary education is controlled by the Federal government. There are about 20 lyceums and 45 normal schools. On May 24, 1909, a new industrial school, erected at a cost of \$424,000, was opened at Buenos Ayres. For higher education there are national universities at Buenos Ayres and Córdoba, provincial universities at Santa Fé, La Plata, and Paraná, a school of mines, a college of agriculture, a school of commerce, a military and a naval school, etc. In addition to the public educational institutions, there are numerous private schools throughout the country. Newspapers are published in even the smaller towns, and in Buenos Ayres 472 periodicals of all kinds are reported, of which 66 are dailies, 16 tri-weeklies, 44 bi-weeklies, 191 weeklies, and 64 monthlies. The state religion is Roman Catholicism, but religious toleration prevails.

AGRICULTURE, STOCK RAISING, ETC. To her farms and live-stock Argentina owes her constantly increasing prosperity. For the agricultural year 1908-9, the total cultivated area was reported at 15,830,563 hectares (1 hectare = 2.471 acres), the areas sown to the principal crops being as follows: Wheat, 6,063,100 hectares; corn, 2,973,900; flax, 1,534,300; oats, 633,300. About 4,000,000 hectares are under alfalfa, and 56,000 hectares are planted to vineyards. The cultivated area in 1908-9 showed about a 10 per cent. increase over that of the preceding year. Of the areas sown to wheat, corn and flax, the province of Buenos Ayres was credited with 40, 49, and 28 per cent., respectively. Santa Fé had 23 per cent. of the wheat area, 28 of the corn, and 44 of the flax; Córdoba, 25 per cent. of the wheat, 9 per cent. of the corn, and 11 per cent. of the flax; Entre Rios, 5 per cent. of the wheat, 4 of the corn, and 15 of the flax. Of the 633,300 hectares sown to oats, 579,700 hectares were in the province of Buenos Ayres. The estimated yields of the staple crops in the 1908-9 season were: Wheat, 5,759,185 tons; corn, 5,930,000 tons; flaxseed, 1,457,585 tons; and oats, 791,625 tons. In 1907 the production of sugar chiefly in the province of Tucumán amounted to 109,445 tons; in 1908, 161,662 tons. Wine production in 1907 amounted to 169,722,391 litres, and in 1908, 186,091,072 litres; of the latter amount 174,297,392 litres were produced in the province of Mendoza. Cotton and silk culture have begun to be of some importance, and the cultivation of yerba maté is now being fostered by the government. In 1909 a plan was projected for a system of irrigation, costing upwards of \$24,000,000, to effect a more advantageous distribution of the waters of the Negro, Limay, Tercero, Mendoza, Neuquen, Tumayán, Saldo, Diamante, Atuel, and Dulce rivers.

The third general census of live-stock in the Republic was taken in May, 1908, the two previous enumerations having been made in 1888 and 1895. The returns of the third census showed an increase over 1895 in the number of each kind of live-stock except sheep. The figures for 1895 and 1908 respectively are: Cattle, 21,701,526 and 29,116,625; horses, 4,446,859 and 7,531,376; sheep, 74,379,562 and 67,211,754; swine, 652,766 and 1,403,591; goats, 2,748,860 and 3,945,086; mules, 285,497 and 465,037; asses, 197,872 and 285,088. The total value of the live-stock was placed at about \$645,000,000. Of cattle, horses and sheep

respectively, the provinces of Buenos Ayres had 16,351,235, 2,519,953, and 34,604,972. Corrientes, 4,275,895, 596,130, and 3,138,563; Santa Fé, 3,413,446, 913,965, and 969,406; Entre Rios, 3,145,639, 647,107, and 7,005,469; Córdoba, 2,639,480, 907,514, and 1,992,110. It is seen that by far the greater part of the live-stock are in the eastern provinces, all but one of which border on the River Plata; together they had in 1908 21,191,076 cattle, 4,719,712 horses, and 45,718,410 sheep. It was in these provinces, however, that occurred the great decline in the number of sheep—16,523,176 less than in 1895—a decline due partly to the substitution of cattle for sheep on the pastures and partly to the remarkable development of cereal production in this part of the Republic. The decline in sheep was partly offset by a net increase in the territories of about 9,000,000. The Argentine government in various ways encourages and protects the live-stock industry. Animal expositions held at Palermo, near Buenos Ayres, show a constant improvement in breeding and selection of stock, and rigid quarantine regulations are in force regarding the importation of animals.

Argentina's meat-packing industry has assumed extraordinary importance. Returns for 1908, perhaps not complete, showed for the freezing and salting establishments a slaughter of 981,965 cattle, 3,827,846 sheep, and 14,611 swine. In addition these establishments slaughtered 754,300 Uruguayan and 425,000 Brazilian cattle.

Compared with the meat packing, the dairy industry, which centres in the province of Buenos Ayres, is small. Returns from 579 establishments showed, for 1907, a milk production of 206,822,196 litres and a butter production of 6,727,988 kilos. Cheese produced in 1907 amounted to about 1,870,802 kilos.

In 1895 there were 82,497 ostriches in Argentina; in 1908, 422,783. There is a constantly growing demand for plumes in the country, so that, notwithstanding the increasing flocks, exports have been declined.

The northern provinces are rich in timber, and the quebracho industry especially has become important. (See FORESTRY.) Mineral production is retarded by the present lack of capital, difficulties of transportation, and the high price of fuel. Small quantities of salt, copper, and gold are mined.

MANUFACTURES. Manufacturing, which is hampered by the lack of fuel, does not show a great development. In 1907 there were 350 flour mills, of which 290 were in operation, grinding 1,021,252 metric tons of wheat, yielding 697,863 tons of flour, 175,339 tons of bran, 93,030 tons of middlings, and 18,964 tons of seconds. Of the amount ground about 59 per cent. was produced in the city and province of Buenos Ayres. There are two cotton spinning mills and 66 weaving establishments. Tobacco factories number 77, representing an investment of \$3,440,272 and an annual output valued at about \$12,783,000. The greater part of the manufacturing is in Buenos Ayres city and province. At the beginning of 1909 there were within this area 8647 factories, of which about three-fourths were owned by foreigners. The total capital amounted to \$59,090,235, and the gross annual income to \$123,178,000. The four leading industries were: Frozen-meat companies (8), capital, \$13,220,758; breweries (11),

capital, \$7,196,970; flour mills (67), capital \$4,822,293; paper factories (6), capital, \$2,755,229. The employees in all the factories numbered 46,642.

FOREIGN COMMERCE. Imports and exports, exclusive of coin and bullion, have been as follows, in gold pesos (1 peso = \$0.965):

	1906	1907	1908
Imports	269,970,524	285,860,683	272,972,736
Exports	292,253,829	296,204,369	366,005,341

The leading imports in 1908 were, in gold pesos: Textiles and their manufactures, 49,911,338; transport appliances, vehicles, etc., 30,700,337; iron and its manufactures, 30,075,484; ceramic products, 24,897,435; foodstuffs, 23,549,097; building materials, 21,182,426; agricultural implements, 15,839,838; wines and liquors, 13,279,781; oils (mineral, vegetable, etc.), 11,051,723; chemical and pharmaceutical products, 9,189,153; metals (other than iron) and their manufactures, 8,749,866; woods and their manufactures, 6,212,864; paper and its manufactures, 5,942,560; tobacco and its manufactures, 5,557,649; electrical appliances, 3,329,290; leather and its manufactures, 2,136,303; live animals, 1,768,739.

Exports in 1908 were included in six general classes: Agricultural products, 241,677,164 pesos (gold); live-stock products, 115,118,457; forest products, 6,347,234; mineral products, 810,961; fish and game, 498,612; various, 1,552,913. As compared with the preceding year the export of agricultural products increased by 77,585,543 pesos, forest products by 1,004,877 pesos, and mineral products by 245,922 pesos, while the exports of live-stock declined by 8,701,748 pesos and fish and game by 330,947 pesos. The export of wheat in 1908 amounted to 3,636,294 tons, valued at 128,842,610 pesos, an increase of 955,492 tons and 46,114,863 pesos over 1907; corn, 1,711,804 tons, valued at 35,614,594 pesos, an increase of 455,492 tons and 11,902,886 pesos; linseed, 1,055,650 tons, valued at 49,004,704 pesos, a gain of 291,914 tons and 12,923,483 pesos; flour, 113,500 tons, showing a decrease of 13,999 tons, but an increase in value of 436,400 pesos; oats, 440,041 tons, valued at 9,697,397 pesos, a gain of 296,475 tons and 6,104,000 pesos. Among pastoral products the exports of 1908 included: Frozen and chilled beef, 174,563 tons, showing an increased valuation over 1907 of 5,275,000 pesos; wool, 175,538 tons, valued at 47,246,183 pesos, a decrease of 12,016,765 pesos; sheepskins, 27,957 tons, a decrease of 2,600,000 pesos; frozen mutton, 78,846 tons, cattle hides, 64,516 tons, a decrease of 900,000 pesos; fats and grease, 43,977 tons; bones, 20,099 tons; hair, 2193 tons; goatskins, 2309 tons.

In 1908 the live-stock exports were: Beef cattle, 60,916; sheep, 103,792; horses, 5082; asses, 11,163 (11,162 to Bolivia); mules, 7967; swine, 126. Counting the live-stock slaughtered in the freezing establishments and salting works, the total number of beeves exported in 1908 was 882,362, and of sheep 3,401,459, as compared with 918,873 beeves and 2,912,581 sheep in 1907.

In 1907 the quebracho export amounted to 246,514 tons of round timber and 28,195 tons of extract; in 1908, 254,571 tons of round timber and 48,161 tons of extract.

The trade in 1908 with the principal countries of origin and destination is shown in the following table, in gold pesos:

	Imports from	Exports to
Great Britain.....	93,371,396	78,324,723
Germany	67,847,076	34,751,994
United States.....	35,597,004	13,023,238
France	26,476,917	28,913,730
Italy	24,913,248	7,907,857
Belgium	12,753,373	35,778,188
Spain	8,618,110	2,599,603
Brazil	7,285,946	15,095,578
Austria-Hungary	3,293,500	1,071,134
Uruguay	2,207,038	774,454
Netherlands	2,038,030	5,299,670
Paraguay	1,509,955	213,666

SHIPPING, ETC. Buenos Ayres is the port at which the most vessels enter and clear, while Rosario is second and La Plata and Bahia Blanca have considerable foreign trade. Steamship service is principally between Buenos Ayres and European ports, but five steamship lines (1908) connect directly with the United States, only one of which, however, has regular passenger service. In 1908 the port of Buenos Ayres was visited by 2003 steamships, aggregating 4,646,404 tons, and by 229 sailing vessels, aggregating 242,337 tons, an increase of 359 steamships and 998,978 tons over 1907, and a decrease of 9 sailing vessels and 10,931 tons. The tonnage was divided as follows: British, 2,846,014 tons; German, 599,536; Italian, 483,780; French, 330,044; other countries, 629,367. Shipping to Buenos Ayres under the American flag was represented by only four small sailing vessels, aggregating 4074 tons.

It was announced in 1909 that during the following ten years some 60,000,000 pesos (gold) would be expended in improving the port of Buenos Ayres and on the construction of a ship canal which will enable vessels of deep draft to ply between the capital and Rosario at all stages of the tide.

INTERNAL COMMUNICATIONS. At the end of 1908 there were 14,740.5 miles (23,722.6 kilometres) of railway representing a capitalization of 788,964,416 pesos (gold) in operation. In the summer of 1909, 15,476 miles were reported. The total earnings in 1908 were 101,391,000 pesos, and the net profits 40,023,000 pesos; passengers numbered 48,593,600, and the freight amounted to 31,930,600 tons. Lines owned and operated by the government aggregated 1838 miles. In 1909 about 4000 miles of railway were under construction, and 6200 miles under survey. The Transandine railway is still under construction; it will be 888 miles long, connecting Buenos Ayres with Valparaiso (Chile), and includes the Andine tunnel, which when completed will have a length of 9941 feet. It is expected that the line will be open to traffic before the middle of 1911. At the end of 1908, the telegraph system comprised 15,772 miles of line, with 36,461 miles of wire, over which during the year 10,840,000 messages were transmitted; 9457 persons were employed, and the receipts amounted to 2,476,140 pesos. On the same date the post-offices numbered 2377, an increase of 239 during 1908; the postal receipts for the year amounted to 8,328,989 pesos.

FINANCE. In 1907 the revenue amounted to 64,527,983 pesos gold and 97,153,870 pesos paper (the gold peso is worth 96.5 cents, and the paper peso, under the conversion law of

1899, .44 of the gold peso). For 1908 the estimated revenue was 57,830,105 pesos gold and 83,766,359 pesos paper; estimated expenditure, 24,450,259 pesos gold and 155,931,230 pesos paper. The budget for 1909 showed estimated revenue of 62,520,433 pesos gold and 89,979,319 pesos paper; and estimated expenditure, 25,463,321 pesos gold and 173,969,224 pesos paper.

The principal estimates of revenue were: Import duties, 55,030,000 pesos gold; spirits and beer, 19,800,000 pesos paper; tobacco, 17,400,000 paper; port dues, etc., 5,230,000 gold; ports and telegraphs, 9,700,000 paper; stamps, 9,450,000 paper; railways, 9,000,000 paper. The principal estimates of expenditure were: Public debt, 23,045,692 pesos gold and 16,605,488 pesos paper; justice and education, 31,515,746 paper; interior, 27,150,650 paper; public works, 26,370,340 paper; army, 21,819,614 paper; navy, 13,488 gold and 16,300,938 paper. On December 31, 1908, the total liabilities of the government amounted to about 378,500,000 pesos gold. On the same date the government gold reserve for the conversion of national currency was 126,482,516 pesos gold, an increase of 21,368,644 pesos over 1907. Argentine banks had on deposit 26,474,471 pesos gold and 809,323,321 pesos paper, as compared with 29,028,792 gold and 729,328,111 paper in 1907.

Large amounts of foreign capital are invested in Argentina; in the lead is British capital, the estimated investments amounting in 1909 as follows: Government and municipal bonds, £74,384,153; railways, £153,191,058; miscellaneous, £25,125,809; total, £252,701,560.

ARMY. By the provisions of the law of 1905 compulsory service in the army is required of all citizens from their twentieth to forty-fifth year, divided into three periods as follows: 10 years in the active army, 10 years in the national guard, and five years in the territorial guard. This is not rigorously enforced, however, so that actually the army consists of a national militia where a period of continuous training in the ranks is demanded only for one year, and that only of a portion of the soldiers annually summoned, the remainder being released after three months' training. Provision is made for maintaining the organization and training, however, throughout the statutory periods. On a peace footing the Argentine army consisted of 18 battalions of infantry, two of which were mounted, 10 regiments of cavalry, 5 regiments of field artillery, three regiments of mountain artillery, and four battalions of engineers. The total force aggregated between 16,000 and 17,000 men. On a war basis the five military districts into which the Republic is divided will each furnish a complete division and a reserve division each of about 12,000 men irrespective of the national guard and territorial troops which receive but little training. The Mauser repeating rifle, model 1891, is used by the infantry and a carbine of the same system by the cavalry.

NAVY. In 1909 the Argentine navy was reported to comprise 4 armored cruisers of the first class, of 6840 tons each; 3 ironclads, of 4200 tons; 2 monitors, of 1535 tons; 4 cruisers of the second class, of 4700, 3500, 3200, and 1530 tons respectively; and 3 destroyers, 2 torpedo cruisers, 24 torpedo boats, 5 transports, 1 school-ship, and a number of auxiliary vessels. The officers (including engineers) number 493,

and the number of enlisted men varies from 5000 to 6000, according to the number of annual recruits. The government negotiated in 1909 for two new battleships with a shipbuilding company in the United States. The two vessels were to be superior to the ships of the Brazilian *Minas Geraes* class in size, speed, and armament. It was expected that they would be similar to the American *Arkansas* class, with a tonnage of about 25,000, turbine engines and a speed of 22 knots on 8-hour trial.

GOVERNMENT. Argentina is one of the five American republics that have adopted the federal form of government, the others being the United States, Mexico, Brazil, and Venezuela. The executive authority is vested in a president, who is elected for a term of six years and appoints a responsible ministry. The President in 1909 was José Figueroa Alcorta, formerly Vice-President, who assumed office on the death of President Quintana in March, 1906. The legislative power devolves upon a congress of two houses, the Senate (30 members) and the House of Deputies (120 members). Except in matters affecting the Republic as a whole, the provinces are autonomous, having their own elected legislatures and governors.

HISTORY. It was announced in February that the new internal loan of \$50,000,000 in gold at five per cent. had been secured by a group of American and European financiers, including J. P. Morgan. Serious disturbances occurred during the first week of May in consequence of anarchist agitation and labor troubles. A collision on May Day between the labor demonstrators and the police resulted, according to the report, in twelve killed and one hundred injured. The raid was said to have been begun by anarchists who fired on the police wounding five. In the fight between the strikers and the strike-breakers on May 3 one was killed and several were wounded. The strikers declared they would not return to work until the prefect of police resigned. The strike entailed great hardship on the public. The necessities of life were hard to obtain; the port was practically closed and the tram cars were held up. On May 7 a score of persons were injured by a bomb explosion on a street car. The President's message to Congress was read on May 15. It promised a treaty of arbitration with the United States, declared the economic situation good and announced a surplus in the budget of 1908 of \$40,000,000 in paper over the estimates. Much distress was caused by a drought which extended over a great part of the country in May. The course of Bolivia (q. v.) in the matter of the Peruvian award in the boundary dispute between Bolivia and Argentina caused much indignation in the latter country. The Bolivian government announced that the award would have to be ratified by the Congress. Argentina complained of this as a violation of the treaty of 1902 which gave the arbitrator the final decision with appeal. Further offense was given by the terms of a circular addressed by the Bolivian government to the prefects of departments, saying that the award was unjust and must be regarded as a national misfortune. As a result of these difficulties Argentina severed her diplomatic relations with Bolivia. The prefect of police was killed by a bomb thrown by an anarchist in Buenos Ayres November 14. The President signed a decree proclaiming martial law for sixty days.

ARIZONA. A Territory of the Southwestern United States. It has an area of 113,956 square miles, of which only 116 square miles are water. There was a population in 1900 of 122,931. According to a Federal estimate made in 1909 the population was 154,151. The capital is Phoenix.

MINERAL PRODUCTION. Copper is the chief mineral product of the mines of Arizona, although copper, gold, silver and lead are also produced in considerable quantities. The total value of the mineral products of the State in 1908, according to the figures given by the United States Geological Survey, was \$43,502,834. This was a considerable decrease over the value of the product of 1907, which was \$56,753,650. In the mining of copper Arizona ranks third among the States, being surpassed only by Montana and Michigan. In 1908, 289,523,267 pounds of a value of \$3,821,707 were produced. This was a considerable increase over the product of 1907 which was 256,778,437. The lower price of copper, however, made the value of the 1908 product much less than in 1907, when it was \$51,355,687. The production of copper has shown a remarkable increase since 1900 when it amounted to less than 200,000 pounds. About one-half of the product comes from Cochise county. The copper output equals about one-fourth the total product of the United States. There were produced in 1908, 120,937 fine ounces of gold, valued at \$2,500,000 as compared with 128,871 fine ounces in 1907, with a value of \$2,664,000. The silver production of 1908 was 2,900,000 fine ounces, valued at \$1,551,200 as compared with 2,903,100 fine ounces in 1907 with a value of \$1,916,000. Lead was produced to the amount of 1464 short tons, valued at \$122,976, compared with 2340 short tons, valued at \$248,040 in 1907. There are also clay products, precious stones, tungsten, and a small quantity of zinc produced in the State. The value of the mineral products of the State for the year 1908 was \$43,502,834 as compared with a value of the product for 1907 of \$56,753,650.

The gold production in 1909 was estimated by the Director of the Mint at 1,292,736 fine ounces, valued at \$3,672,300. The silver production was 3,632,200 fine ounces, valued at \$1,889,300.

The production of copper in 1909 showed a slight increase over the production of 1908. As a result of the increase in Montana, the State fell to second place in the production of this metal.

AGRICULTURE AND STOCK RAISING. The acreage, value and production of the principal crops in the Territory in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 417,000 bushels, valued at \$417,000; from 13,000 acres; spring wheat, 400,000 bushels, valued at \$556,000, from 16,000 acres; oats, 148,000 bushels, valued at \$117,000, from 4000 acres; barley, 1,280,000 bushels, valued at \$1,126,000, from 32,000 acres; hay, 360,000 tons, valued at \$4,608,000, from 109,000 acres. The area of the agricultural lands in the Territory is about 1,500,000 acres, but the area actually under cultivation is little in excess of 200,000 acres. Cultivation is carried on largely by irrigation. Fruits of all kinds, both temperate zone and sub-tropical, are grown on a small scale. The farm animals on Jan. 1, 1910, were as follows: Horses, 115,000; other cattle 626,000; sheep, 1,020,000. The numbers of cattle and sheep have increased considerably

in the last few years, the increase of sheep being nearly 50 per cent. in the last three years. The wool clipped in 1909 was 5,361,200 pounds.

Sugar beets have been grown with some success. A large factory has been erected at Glendale, and 4000 acres of beets were planted. The crop from this was very successful. Dry farming is carried on with success in different parts of the Territory. The ostrich industry is important. In the Salt River Valley there are more than 5000 ostriches, which constitute over 80 per cent. of all the ostriches in the United States.

EDUCATION. The number of school children between the ages of 6 and 21 in the school year 1908-9 was 36,729. Of these there were enrolled in the public schools 27,639. The average daily attendance was 17,863. There were employed in the schools of the Territory 122 male teachers and 671 female teachers. The average monthly salary of male teachers was \$104.64 and of female teachers, \$79.61. The total receipts for education during the year amounted to \$926,587, and the total expenditures were \$889,148. The Territory maintains two normal schools, one at Tempe and the other at Flagstaff. At the former there were in 1909 251 students and at the latter 98.

FINANCE. There was a balance in the treasury on June 30, 1908, of \$436,324. The receipts for the fiscal year 1909 were \$915,490, while the expenditures were \$989,370, leaving a balance on June 30, 1909, of \$376,704. Unusually large appropriations by the 24th legislature increased the expenditures beyond those of previous years. The funded debt of the Territory on June 30, 1909, amounted to \$781,972.

CHARITIES AND CORRECTIONS. The correctional and charitable institutions of the Territory include the Territorial prison at Florence, Asylum for the Insane, and Territorial Industrial School at Benson. On June 30, 1909, there were in the Territorial prison 230 prisoners. In the Asylum for the Insane on June 30, 1909, there were 325 inmates. During the year a modern and well equipped hospital was almost completed and many other improvements were carried on. At the close of the year there were 54 boys and 4 girls at the Territorial Industrial School, which is a reformatory institution for incorrigible youths of both sexes.

POLITICS AND GOVERNMENT. The chief political interest in the Territory during the year was centered in the attempt to pass a bill in Congress providing for Statehood, and the failure of the measure. (See CONGRESS and NEW MEXICO.) The people of the Territory are a unit in their desire for Statehood and confidently expect to receive it at the present session of the 61st Congress.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: A direct primary law was enacted; a railway commission for the Territory was created; an act was passed relating to vital statistics; the office of historian for the Territory was created; a home for aged and infirm Arizona pioneers was authorized; and a commission was appointed to draft a code of laws regulating mining. Measures were enacted requiring banks other than savings banks to keep at least 15 per cent. in cash with an aggregate amount of deposits. To the qualification of electors as heretofore was added the following: "And who, not being prevented by

physical disabilities from so doing, is able to read the Constitution of the United States in the English language in such a manner as to show he is neither prompted nor reciting from memory, and to write his name." Any person of good moral character who can pass the examination is authorized to practice law in the Territory. A statute limiting damages for injuries resulting in death for \$5000, was amended by striking out the amount and allowing the jury to fix damages.

OFFICERS: Governor, Richard E. Sloan; Secretary, George U. Young; Treasurer, E. E. Kirkland; Auditor, W. C. Foster; Adjutant-General, L. W. Coggins; Attorney-General, John B. Wright; Superintendent of Education, Kirke T. Moore; Commissioner of Insurance, George U. Young—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Edward Kent; Associate Justices, E. M. Lewis, Fletcher M. Doan, John H. Campbell, Edward M. Doe; Clerk, F. A. Frith, Jr.—all Republicans.

The Territorial Legislature of 1909 was composed of 10 Democrats and 2 Republicans in the Council and 17 Democrats and 7 Republicans in the House. The Territorial Representatives in Congress will be found in the section *Congress of the article UNITED STATES.*

ARKANSAS. One of the South Central Division of the United States. The area is 53,335 square miles, of which 810 are water. The population in 1900 was 311,564. The population in 1909, according to a Federal estimate made in that year, was 1,476,582. The capital is Little Rock.

MINERAL PRODUCTION. The most important mineral production of Arkansas is coal. Of this there were produced in 1908 2,078,357 short tons, with a value of \$3,499,470. The State suffered more from the unfavorable conditions which prevailed during 1908 than any other of the States of the Southwestern region. The loss in actual tonnage from the production of 1907 amounted to 592,081 short tons, while the value declined from \$4,473,693 in 1907. The factors which contributed to the decreased production were financial depression, the exceptionally warm weather during the winter months, labor disaffections, and increased production and consumption of petroleum and natural gas in the Louisiana and mid-continent fields. The last factor was chiefly responsible for the decrease. The labor disaffection was the usual biennial suspension of operations on April 1, pending the settlement of the wage scale. There were 5337 men employed in the mines of the State during the year, and of these, 4037 were on strike and idle for an average of 96 days each. Notwithstanding the depression and the decreased production in 1908 there was a larger number of men employed than in 1907. There were killed in the State in 1908, 14 men, while 17 were seriously injured. Among other important mineral productions are bauxite and clay products, the value of which in 1908 was \$508,788 as compared with 536,286 in 1907. Iron is also produced in considerable quantities, as well as lime and limestone. The values of the mineral products of the State for 1908 was \$5,348,907 as compared with a value of the products in 1907 of \$6,386,747.

The production of coal in 1909 was about the same as in 1908.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the chief crops, except cotton, in this State in 1909, according to the figures of the United States Department of Agriculture, were as follows: Corn, 50,400,000 bushels from 2,800,000 acres, valued at \$36,288,000; winter wheat, 1,721,000 bushels, from 151,000 acres, valued at \$1,893,000; oats, 3,739,000 bushels, from 184,000 acres, valued at \$2,206,000; rice, 1,120,000 bushels, from 28,000 acres, valued at \$1,008,000; potatoes, 2,310,000 bushels, from 33,000 acres, valued at \$2,125,000; hay, 248,000 tons, from 198,000 acres, valued at \$2,678,000. The acreage of corn in the State has almost doubled in seven years. The crop of 1909 was, however, considerably smaller than that of 1908, which was 54,035,000 bushels. The cotton crop of 1909-10 was estimated at 715,000 bales as compared with 1,009,000 bales in 1908-9. A considerable area in the southwestern part of the State is devoted to the cultivation of rice. The crop of 1909 was over twice that of 1908, which was 467,400 bushels, and the area devoted to rice also increased from 11,400 acres to 28,000 acres in 1909. The number of farm animals in the State on January 1, 1910, was reported as follows: Horses, 290,000; mules, 215,000; milch cows, 361,000; other cattle, 600,000; sheep, 233,000; swine, 978,000. The number of horses and cattle have remained constant for several years, while other cattle have increased considerably. Swine have decreased during the same period. The wool clipped in 1909 was 766,080 pounds.

EDUCATION. The school population of the State at the beginning of the school year 1909 was 557,468. The enrollment in the public schools was 374,154, and the average daily attendance 243,232. The number of teachers employed was 9164. The average monthly salary for teachers was \$55.77. The total expenditures for public schools for the year ending June 30, 1909, was \$3,110,164. The first compulsory attendance law enacted in Arkansas became effective at the beginning of the school year 1909-10. Two acts were passed by the last General Assembly. One requires a minimum attendance of one-half a school term between the ages of 8 and 16 years, and is effective in 31 counties. The other places the age limit at from 8 to 14 years, effective in nine counties. This leaves 35 counties without compulsory law. A marked increase in the attendance in both town and rural schools is reported from all sections where these new laws apply. The last General Assembly appropriated \$160,000 for the establishment of four agricultural schools in the State, one in each of the four districts. In June, 1909, B. W. Torreyson was appointed Professor of Secondary Education in Arkansas. Excellent results are already apparent in correlating courses in village and city high schools and adding to the course of study in many schools. Consolidation of school districts was made possible by enactment of the last General Assembly, which permits the patrons of any rural territory to petition the County Court for the organization of a special school district having all the rights and privileges previously allowed only to schools in incorporated towns and cities. The annual convention of the Conference for Education in the South will be held at Little Rock, April 6, 7, and 8, 1910.

FINANCE. The report of the State Treasurer for the year 1907-8 showed a balance on hand on October 1, 1906, of \$3,236,686. The receipts from October 1, 1906, to September 30, 1908, were \$4,936,658. The disbursements from October 1, 1906, to September 30, 1908, were \$5,076,556, leaving a balance in the treasury on October 1, 1908, of \$3,096,788. The general revenue funds amounted on October 1, 1908, to \$281,147. The total expenditures under this fund from 1906 to 1908 were \$1,761,410. The receipts under the common school fund from October 1, 1906, to October 1, 1908, were \$1,812,281 and the expenditures \$1,709,758. The total State debt October 1, 1908, was \$1,250,500.

CHARITIES AND CORRECTIONS. The State charitable institutions are the Arkansas Hospital for Nervous Diseases, the Arkansas School for the Blind, the Arkansas Deaf and Dumb Institute, the Arkansas State Penitentiary, the Arkansas Federal Soldiers' Home and the Arkansas Reform School, all of Little Rock.

POLITICS AND GOVERNMENT. The Legislature reelected United States Senator James P. Clarke for a second term, he having been the unopposed nominee of the Democratic primary. The Republican nominee, Harry H. Myers, received the votes of the three Republican members of the legislature.

The House passed three Prohibition measures. The first, the Gann bill, providing for statutory State-wide Prohibition, was amended in the Senate so as to provide for submission first to the voters of the State. The House refused to concur in the amendment. Another statutory State-wide Prohibition bill and a joint resolution providing for submission of the question were passed later by the House, but the Senate failed to pass either measure. A bill appropriating \$795,000 for the completion of the new State Capitol, the Governor's bill, was passed. The legislature annulled the contract between the State and Caldwell and Drake, former State Capitol contractors. A bill was passed creating a State Tax Commission, which has caused to be put on the tax books some fifty million dollars of new assessments. The legislature voted to submit to the people at the next State election—in September, 1910—two constitutional amendments, one providing for the initiative and referendum, and the other exempting from taxation, for a period of seven years, all capital invested in the manufacture of cotton in Arkansas for the next ten years. Bills were passed appropriating \$160,000 for four agricultural schools; \$250,000 for a new Insane Asylum annex; \$60,000 for a tuberculosis sanatorium. Other bills were passed providing for legalized primary elections and authorizing the working of State convicts on public roads. A general drainage law was also enacted. The legislature appropriated \$50,000 to enable the State to employ counsel and defend, in the United States courts, the suits brought by the railroads of the State in their effort to put in force higher freight and passenger rates.

OTHER EVENTS. On March 9 a tornado killed about thirty persons and injured three hundred in the town of Brinkley, besides doing damage to the amount of a million dollars. Other tornadoes in eastern and northwestern Arkansas killed small numbers of people.

The most important industrial development

during the year was the great growth of the rice industry in the eastern part of the State.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: An act was passed providing that two or more persons uniting for the purpose of doing an unlawful act while armed or disguised, and persons who knowingly attend a meeting for such purpose, shall be guilty of felony and shall be punished by confinement in the penitentiary not to exceed ten years. Such persons intimidating or attempting to intimidate any person by assault or destruction of property, or mailing or delivering any printed notice calculated to intimidate a person, shall be guilty of felony and punishable by confinement in the penitentiary from two to ten years, and fined not more than \$5000. Any such person who seeks to intimidate by writing or token, or deliver any message purporting to come from such unlawful band, shall be guilty of a felony and punishable by confinement in the penitentiary from one to seven years. This act was intended to prevent what is called night-riding. An act was passed providing that when mob violence is threatened the sheriff shall notify the judge of the trial court and request a special term of court. The judge may impanel a special grand jury and provide other necessary machinery and begin the trial within ten days.

OFFICERS. Governor, George W. Donaghey; Lieutenant-Governor, J. T. Robertson; Secretary of State, O. C. Ludwig; Treasurer, James L. Yates; Auditor, J. R. Jobe; Attorney-General, Hal L. Norwood; Superintendent of Education, George B. Cook; Commissioner of Agriculture, Guy B. Tucker; Commissioner of Public Lands, L. L. Coffman—all Democrats.

Judiciary: Supreme Court, Chief Justice, Edgar A. McCulloch; Justices, Samuel Frauenthal, C. D. Wood, Burrill B. Battle, and Jesse C. Hart; Clerk of the Court, P. D. English—all Democrats.

The State Legislature of 1909 was composed of 35 Democrats in the Senate, and 97 Democrats and 3 Republicans in the House. The State Representatives in Congress will be found in the section *Congress* of the article **UNITED STATES**.

ARMIES. See **MILITARY PROGRESS**, and articles on countries.

ARMSTRONG, FRANK C. An American soldier and public official, died September 8, 1909. He was born at the Choctaw Agency, Indian Territory, in 1835, and was educated at Holy Cross College. In 1854 he accompanied General P. F. Smith in a journey across Texas, and for bravery in an encounter with Indians was appointed first lieutenant in the Second United States Dragoons. He served until 1861, when he resigned to enter the Confederate army. He performed notable services during the Civil War, and rose to the rank of brigadier-general. Following the war he was engaged in the Overland Mail Service. From 1885 to 1889 he was a United States Indian inspector, and from 1893 to 1895 was Assistant Commissioner of Indian Affairs.

ARNOLD-FORSTER, HUGH OAKELEY. An English statesman and publicist, died March 12, 1909. He was born in 1855. His father was William Delafield Arnold, son of Dr. Thomas Arnold, and brother of Matthew Arnold. William Arnold's four children, on his

death, were adopted by his sister and her husband, William Edward Forster, whence the double name Arnold-Forster. Hugh Arnold-Forster was educated at Rugby and University College, Oxford, and following his graduation studied for and was admitted to the bar. After some years of practice he left the law, and entered the publishing house of Messrs. Cassell. For them he wrote the *Citizen Reader*, and edited André's *Atlas*. In 1896 Arnold-Forster was elected to Parliament from West Belfast as a Liberal Unionist, and in 1900 he was made Parliamentary Secretary to the Admiralty. Following the South African War he went to South Africa as chairman of the Small Land Settlement Commission. In 1903 he was offered the portfolio of the War Office, which, after some hesitancy, he accepted. He at once appointed a commission to report on a reorganization of the War Office. His efforts to bring about a new army scheme were not supported by his colleagues and before any practical steps could be taken the Unionist Parliament and Government came to an end. Arnold-Forster was a profound student of military and naval matters, and was a keen and efficient debater in Parliament. He wrote *Things New and Old* (7 vols); *Our Home Army*; *A History of England* (1897); *Army Letters* (1898); *Our Great City* (1900); *The Army in 1906* (1907).

ARSENIC. During 1908 arsenic was produced in a commercial way at only two places in the United States, at Everett, Washington, and by the Washoe Copper Company at Anaconda. The Everett plant produced most of its arsenic from arsenical ores mined in California and Washington, with a smaller quantity from flue dusts shipped from smelters at Helena, Montana, and Murray, Utah. The imports of 1908 of white arsenic, metallic arsenic and arsenic sulphides amounted to 4964 short tons, valued at \$430,400. The imports of Paris green and London purple amounted to 195,000 pounds, valued at \$30,764. The principal producing countries for arsenic are Germany, Spain, Portugal, France, India, and Canada. Among its principal uses are as trioxide in glass, as Paris green in pigments, and as insecticides. The use of Paris green in paint is somewhat limited, as, like practically all arsenic compounds, it is poisonous. In 1909 the domestic production of arsenic was increased by the output of a new producer, the United States Smelting Company, which started its arsenic plant at Salt Lake City, Utah. The price was low during the year, but the commercial white arsenic produced in this country being a by-product the production was not materially affected. The greater part of the arsenic consumed was imported from Europe, some also coming from Canada and Mexico. The price at the beginning of 1909 was from 2 7-8 to 3 cents a pound. It fell during the year and at the close was at about 2½ cents.

ARTILLERY. See MILITARY PROGRESS.

ASHANTI. A British possession in West Africa, practically a part of the Gold Coast Colony (q. v.).

ASHOKAN RESERVOIR. See DAMS.

ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, AMERICAN. A learned society, which is a continuation of the American Association of Geologists and Naturalists organized in 1840. The Association was

chartered in 1874. It is made up of eleven sections as follows: Mathematics and astronomy, physics, chemistry, mechanical science and engineering, geology and geography, zoölogy, botany, anthropology and psychology, social and economic science, physiology and experimental medicine, and education. Meetings of the Association are held yearly in different cities of the United States. The annual meeting in 1909 was held in Boston beginning December 27. The registered attendance of members of the Association was 1140, the largest in its history. The address of the retiring president, Professor T. C. Chamberlin, was delivered on the evening of December 22, the subject being, "A Geologic Forecast of the Opportunities of Our Race." This address was preceded by an address of welcome to Harvard University by Professor F. W. Putnam, and was followed by a reception given by the corporation of Harvard University to the members of the Association. On the evening of December 28, a public lecture complimentary to the citizens of Boston was given by Dr. C. W. Stiles on "The Hookworm Problem in this Country in Reference to Public Health," and on the evening of December 30, under the auspices of the Entomological Society of America, a lecture was given by Dr. John D. Smith on "Insects and Entomologists: Their Relation to the Community at Large." On the evening of December 31 a lecture was given by Dr. Percival Lowell on "New Canals of Mars." Meetings of the various sections in joint session with the affiliated societies were perhaps the most successful in the history of the Association as measured by the number of members attending and by the number and quality of the papers presented, and by the interest with which the papers were heard and discussed. The total number of papers presented was 1025. The Council of the Association elected 57 new members, and 229 fellows were elected from those members by the various sections. The following were elected foreign associates: Dr. Hans Hallier of Leyden, Mr. J. J. Taudin-Chabot of Holland, Professor Franz Wiedenrich of Strassburg, and Professor C. Runge of Göttingen. The Council was authorized to elect to membership scientific men of Central and South America. The following officers were elected for the meeting which is to be held at Minneapolis, December 27, 1910: For President, A. A. Michelson, University of Chicago; Vice-Presidents and Chairmen of sections; mathematics and astronomy, Professor E. H. Moore, University of Chicago; physics, Dr. E. B. Rosa, Bureau of Standards, Washington, D. C.; chemistry, Professor G. B. Frankforter, University of Minnesota; mechanical science and engineering, Professor A. L. Rotch, Bluehill Meteorological Observatories; geology and geography, Dr. John M. Clarke, State Geologist of New York; zoölogy, Professor Jacob Reighard, University of Michigan; botany, Professor R. A. Harper, University of Wisconsin; anthropology and psychology, Professor Roland B. Dickson, Harvard University; social and economic science, Senator T. E. Burton of Cleveland, O.; physiology and experimental medicine, Professor F. A. Novy, University of Michigan; education, President A. Ross Hill, University of Missouri; Permanent Secretary, Dr. L. O. Howard, Washington, D. C.; Secretary of the Council, Professor John Zeleny; Secretary of

the section of social and economic science, Fred T. Croxton, Washington, D. C. The membership of the Association in 1909 was about 8000.

ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, BRITISH. A learned society, founded at York, England, in 1831 for the stimulation of scientific inquiry, the promotion of scientific intercourse and the fostering of public interest in science. It holds annual meetings one week in duration. These meetings are held by invitation to some large town in the provinces, and more rarely in the colonies. An annual volume of *Proceedings* is issued, containing complete papers of the addresses of the president for the year and of the presidents of the scientific sections into which the Association is divided. The meeting in 1909 was held at Winnipeg, Canada, and there were in attendance many members of the American Association for the Advancement of Science. Sir J. J. Thompson in the presidential address discussed the recent discoveries of the properties of the negative and positive units of electricity. In the mathematical and physical section, the president, Professor E. Rutherford, continued along the lines of Sir J. J. Thompson's address, with a discussion of the various methods which have been devised for determining the values of certain fundamental atomic magnitudes. Professor H. E. Armstrong, in the chemical section, discussed a large number of the problems which engage the chemical world. Important discussions were carried on in other sections, which include geological, zoölogical, economic science and statistics, engineering, anthropological, educational, physiological and botanical. Among the more important reports submitted to the Association were those on seismological investigation, in which, in addition to the usual statistics of the large earthquakes of 1908, Mr. John Milne discussed the synchronism of earthquake activities in widely separated portions of the earth. The Association meets in Sheffield in August, 1910. The officers of 1909-10 are: President, Sir J. J. Thompson, F. R. S.; General Secretaries, Major P. A. MacMahon, F. R. S., Professor W. A. Herdman, F. R. S.; Assistant Secretary, O. J. R. Howarth.

ASSOCIATION OF AMERICAN AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS. See AGRICULTURAL EXPERIMENT STATIONS.

ASSOCIATION OF AMERICAN UNIVERSITIES. A body organized in 1900 for the purpose of considering matters of common interest in relation to graduate study in American institutions. Its membership in 1909 consisted of the following twenty-two universities: University of California, Catholic University of America, University of Chicago, Clark University, Columbia University, Cornell University, Harvard University, Johns Hopkins University, University of Illinois, Leland Stanford Jr. University, University of Michigan, University of Minnesota, University of Missouri, University of Pennsylvania, Princeton University, University of Virginia, University of Wisconsin, Yale University, University of Kansas, University of Nebraska, Indiana University, and State University of Iowa. The Tenth Annual Conference of the Association was held at Cornell University, Ithaca, N. Y., on Janu-

ary 7 and 8. Four additional universities were elected to membership. These are the last four in the list above. At its meeting in 1908 the Association adopted, as a condition for membership, the presence in the institution in question of a strong graduate school, and, in those institutions which have professional schools in addition to the Graduate Department, the requirement in at least one such school of one or more years of college work as a prerequisite for admission to professional courses, the combination to be so arranged that no professional degree shall be given until the satisfactory completion of at least five years of study. This action defined for the first time what an American university should be from the standpoint of fifteen of the most important of them, and it places all professional study in America in such institutions ultimately upon a graduate basis, in that it proposes in due time to require that all professional work shall be preceded by college work in the manner indicated. The officers of the Association for 1909-10 are: President, Princeton University; Vice-President, University of Virginia; Secretary, Harvard University; additional members of the Executive Committee, Cornell University and Columbia University. The Eleventh Annual Conference in 1910 is to be held in the University of Wisconsin, at Madison.

ASSUR, EXCAVATIONS IN. See ARCHAEOLOGY.

ASTOR LIBRARY. See NEW YORK PUBLIC LIBRARY.

ASTROGRAPHIC CHART. See ASTRONOMY.

ASTRONOMY. The year 1909 was unmarked by any especially important advances in observational astronomy. Routine work, of course, went on with its usual regularity at the various observatories. There were, however, no new satellites discovered, as in 1907 and 1908, nor any striking comets like Moorhouse's comet of 1908, which, though never a very prominent naked-eye object, occasioned much research on account of the peculiar behavior of its tail. Halley's comet, the reappearance of which, after an absence of seventy-four years, was looked for as early as the beginning of the year, was discovered in September; and the closeness of agreement between its observed and calculated positions forms one of the most noteworthy triumphs of astronomical prediction. The meeting of the permanent committee of the International Astrographic Congress in April was an event of great importance. Resolutions were adopted at this meeting which will accelerate the progress of the work on the great International Chart of the Heavens and Catalogue of Stars, and have important results in other fields of astronomical research in which concerted action on the part of the observatories of the world is desirable.

THE SUN. Professor W. S. Adams continued the photographic investigation of the rotation of the sun which he has pursued at the Mount Wilson Solar Observatory since 1906. His recent observations were made with the new and powerful spectrograph of the tower telescope, which has shown a marked increase of probable accuracy over the 18-foot spectrograph of the Snow telescope formerly used. One of the most important results of the investigation was the discovery that the hydrogen gas producing the H α line of hydrogen moves with decidedly

greater angular velocity than the general reversing layer, and seems to be subject to a very different law from that of the ordinary equatorial acceleration.

Professor E. F. Nichols, the recently appointed president of Dartmouth College, completed an important investigation at the Mount Wilson Observatory. Its object was the determination of the law of absorption and scattering of light in the solar atmosphere.

SUN SPOTS. Although the year 1908 was marked by the final setting-in of the decline of solar activity of the present sun-spot cycle, still 1909 saw some slight recrudescence of that activity. Several large groups of spots made their appearance on the sun's disc about the end of May and the middle of July. None of them, however, approached in magnitude the largest of the groups noted during the previous year. In September there was a further renewal of activity, culminating in the formation of a large spot which attained its maximum extent on September 25. This, it is perhaps worthy of remark, coincided with the occurrence of a magnetic storm of sufficient intensity to interfere seriously with telegraphic communication over the whole globe.

SATURN. M. Schaer, of the Geneva Observatory, Switzerland, published further observations of the new outer dark ring discovered by Jarry Desloges at Mount Revard on October 7, 1908, and later observed at Geneva and Greenwich. The existence of the new ring, however, is a matter of dispute, Professor Barnard claiming that, after a most careful search, he was unable to find it.

JUPITER. Professor Lowell published an account of his observations of this planet at Flagstaff during the spring of 1907. The most interesting feature noticed was the system of wisps or lacings which lie between the north and south equatorial belts, forming a network across the equatorial region of the planet. All the dark belts were of a cherry-red color, and even the polar caps at times showed reddish tints. The Great Red Spot was only faintly visible. Other networks similar to the above were detected between the equatorial and tropical belts of each hemisphere.

MARS. The favorable opposition of 1909 afforded an opportunity for further investigation of the markings on the surface of this planet. The principal observers were Lowell at Flagstaff, Arizona, Jarry Desloges at Masegros (Department of Lozère, France), and Jonckheere at Roubaix. A number of new canals were reported, and many striking changes in the configuration of the surface of the planet were observed. Spectrograms of Mars and the moon, secured at the Lick Observatory, indicated that there is no appreciable amount of water vapor in the atmosphere of Mars, contrary to the conclusion reached by Lowell from observations made at Flagstaff in 1908.

COMETS. The periodic comets due to return in 1909 were Perrine's (1896 VII.), Winnecke's (1898 II.), Spitaler's (1890 VII.), and Giacobini's (1896 V.). The year passed without the detection of the last two. Perrine's Comet, first observed in 1896, was not seen at its last return in 1903, on account of its small angular distance from the sun at that time. It has a period of about six and a half years. It was discovered this year by Kopff at Heidelberg on August 12, when it was of the fifteenth magni-

tude. It increased slightly in brightness after discovery, and passed through perihelion on October 31, being then of about the twelfth magnitude. Winnecke's Comet, with a period of 5.7 years, passed through perihelion on October 4, but was not discovered until October 31, when it was detected by Porro at the La Plata Observatory in Argentina. These two comets are designated 1909b and 1909d respectively.

Two new comets were discovered: 1909a. A comet of the eleventh magnitude, discovered by Daniel at Princeton on June 15, and independently by Borrelly at Nice on the preceding day, and hence known as Comet Borrelly-Daniel. It presented no remarkable features, declining rapidly in brilliance after discovery. Its perihelion passage occurred on June 3.

1909e. Another comet of the eleventh magnitude, discovered by Daniel on December 6. This, too, like his earlier discovery, was not remarkable in any way.

1909c, the fifth comet observed during the year, was Halley's comet, which was first detected in September. See following paragraph on *Halley's Comet*.

Comet Moorhouse (1908c) continued to interest astronomers, owing to the surprising changes which took place in it. The sloughing of the tails, to which reference was made in the *Year-Book* for 1908, was well shown in a series of photographs taken by the Rev. Joel Metcalf at Taunton, Mass., during the latter part of November, 1908. In one of these photographs the main tail presented a twisted appearance. After perihelion passage on December 25, it was well observed at the Cape of Good Hope, Santiago de Chile, Lick and Melbourne. The changes in the tail recorded at these observatories were in all respects similar to those observed earlier in the northern hemisphere. Spectrum photographs showed the presence of cyanogen and carbon, contrary to what Bredechin's theory would lead us to expect in the case of a comet with a comparatively straight tail. According to that theory, such a tail should be composed of hydrogen.

HALLEY'S COMET. Such widespread interest in the return of this famous comet, which made its last perihelion passage in 1835, had been aroused by the researches of Messrs. Cowell and Crommelin of Greenwich into its past history and the probable date of its next perihelion passage, that search for it began as early as 1908. The honor of its rediscovery belongs to Professor Max Wolf, of Heidelberg, by whom it was observed photographically at the Königstuhl observatory on September 11. Its discovery is one of the most striking triumphs of computational astronomy, for the position calculated for September 11 by Crommelin was R. A.=6h. 18m. 4s., decl.=17° 16' N, whereas the observed position was R. A.=6h. 18m. 12s., decl.=17° 16' N. When discovered, it was of about the sixteenth magnitude, and appeared as a nebulous mass with a central condensation. After the announcement of its discovery, it was found that its image had been obtained on two plates exposed at Greenwich on September 9, but, on account of its faintness, the observers there had failed to identify it. As a result of the preliminary observations of the comet, Cowell and Crommelin have recalculated the elements of the orbit, and found that the date of perihelion passage must be advanced about three days, thereby making it

April 19, 1910. It was not observed visually until October 20, about which date it was detected by Wolf, Newall, of Cambridge (England), and others. This was about 180 days before perihelion passage, whereas, in 1759 and 1835, its last two appearances, it was seen 75 and 102 days respectively before perihelion. At the end of the year, its distance from the earth was about 120 millions of miles, and it was approaching the earth at the rate of about 500,000 miles daily. Its nearest approach should occur on May 20, when it will be less than 15 millions of miles distant. It is expected that the comet will transit the sun's disc on May 18, when its tail will probably extend far beyond the earth.

STELLAR EVOLUTION. Professor Moulton, in the *Astrophysical Journal*, discussed the possibility of the fission of a contracting rotating fluid mass in reference to the origin of binary stars. Laplace propounded the hypothesis that such a mass might throw off an equatorial ring, which would subsequently be brought by its own gravitation into an approximately spherical mass. Darwin, on the other hand, was led by his tidal researches to attribute the formation of binary stars to fission caused by tidal strain. Moulton discards the former theory for lack of evidence, and discusses Darwin's theory, which derives support from the mathematical investigations of Jacobi, Poincaré and others on the figures of equilibrium of homogeneous rotating fluid masses. The homogeneity postulated has no existence in fact, however, and Moulton maintains that there is no justification for concluding that, in the solar system, there has ever been any example of fission of a fluid body, although binary stars may be due to fission while the parent mass was still in its original nebulous condition. He concludes that "there are now abundant reasons for rejecting Laplace's hypothesis as applied to the solar system," and suggests that "it may be that the time is ripe for a serious attempt to see if the opposite hypothesis of the disintegration of matter because of enormous sub-atomic energies, which perhaps are released in the extremes of temperature and pressure existing in the interior of suns, and of its dispersion in space along coronal streamers or otherwise, cannot be made to satisfy equally well all known phenomena."

SYSTEMATIC MOTIONS OF THE STARS. Since Kapteyn called attention in 1905 to the fact that the distributions of the proper motions of the stars could be explained by supposing the universe to be divided into two great star-streams, in motion relative to the sun and to each other, the question of the systematic motions of the stars has received an increasing share of attention. The results of the researches of Eddington on the stars of the Groombridge and Carrington catalogues, and of Dyson on a number of selected stars of large proper motion afforded striking confirmation of Kapteyn's theory. In a mathematical discussion of the question, Eddington made the assumption that Maxwell's law of distribution of velocities prevailed in each of the two star-streams. Schwarzschild, regarding the duality of the universe as inherently improbable, made use of a modified law of distribution, in which the resolved parts of the velocities of the stars in one direction were all increased in a given ratio, thus giving a spheroidal instead of a spherical distribution. The

result is that the stars appear to form a single instead of a dual system, the velocity of the stream being directed along the major axis of the spheroid. This method has been applied by Schwarzschild himself to the Groombridge stars, and by Beljowsky to the stars determined by Porter. The deductions from Schwarzschild's hypothesis appear at first sight to be at variance with the deductions of Eddington and Dyson, but, when the relative velocities of the star-streams of the latter investigators are estimated and taken into account, it is found that the two hypotheses lead to results which agree very closely. In fact, the apparent motions of the two divergent streams can be resolved into a motion of the solar system relative to the centre of gravity of the streams, and a motion of the two streams in opposite directions. Thus, Dyson found that his two streams were directed towards points in R. A. 93°, decl. 7°S., and R. A., 246°, decl. 64°S. Taking the relative velocities in the ratio of 3 to 2, the apparent motion of the streams could be resolved into a motion of the solar system with a velocity 1.55 towards a point R. A. 283°, decl. 44° N., and a motion of two streams to and from a point R. A. 88°, decl. 21°N. with a relative velocity 4.04. The following table shows the results obtained for the apex or direction of the sun's motion relative to the centre of gravity of the stars, and the vertex, that is, the common direction of the two opposed streams (Eddington and Dyson), or the major axis of Schwarzschild's spheroid (Schwarzschild and Beljowsky).

	Apex of solar motion		Vertex of stream	
	R. A.	Decl. N.	R. A.	Decl. N.
Eddington	266°	31°	95°	3°
Schwarzschild .	266°	33°	93°	6°
Dyson	283°	44°	88°	21°
Beljowsky	281°	36°	86°	24°

INTERNATIONAL CHART OF THE HEAVENS. The permanent committee of the Astrographic Congress of 1887, at which were inaugurated those great international undertakings, the Astrographic Chart and Catalogue, held its fifth meeting at the Paris Observatory, April 19-24. The programme originally laid down by the Congress comprised (1) the construction of charts of the entire heavens, each chart measuring 2°x2°, and containing all stars to the thirteenth magnitude; (2) the compilation of a catalogue of the exact positions and magnitudes of all stars to the eleventh magnitude. When the latter is completed, astronomers will have at their command the absolute positions of all down to the eleventh magnitude at a given epoch. It will be possible, therefore, by redetermining the positions of these stars after a sufficient interval, to derive their proper motions easily and with precision, and thus to discuss such problems as precession, star-drift, etc., with a thoroughness at present impossible. The work of constructing the chart and catalogue was originally divided among eighteen observatories. While some of them have practically completed the work allotted to them, others, for various reasons, are far in arrears with their share, and one of the duties of the committee was the assignment of the work still remaining to be done to the more active observatories. The following shows the progress which has been made on both the chart and the catalogue up to the present time:

Observatory	Limits of declinations of centres of plates	Number of plates in zone	Catalogue plates				Chart plates	
Greenwich	N. 90°-N. 65°	1149	1149	1149	1149	1149	1149	1006
Rome	64°-55°	1040	720	....	....	103	30	....
Catania	54°-47°	1008	590	90	....	97	....	....
Helsingfors	46°-40°	1008	1008	679	435	843	....	....
Potsdam	39°-32°	1232	1232	300	280	....	....	....
Oxford	31°-26°	1180	1180	1180	1180	....	....	....
Paris	24°-18°	1260	1260	1260	540	373	373	....
Bordeaux	17°-11°	1260	958	819	493	127	127	....
Toulouse	10°-5°	1080	738	698	....	191	162	....
Algiers	N. 4°-S. 2°	1260	....	517	425	335	335	....
San Fernando	S. 3°-S. 9°	1260	1260	1125	323	....	215	....
Tacubaya	10°-16°	1260	1260	1121	360	108	88	....
La Plata	S. 3°-S. 9°	1260	....	....	....	....	....	....
Cordoba	17°-23°	1260	....	....	....	....	....	....
Perth	24°-31°	1360	854	299	....	....	....	....
Cape of Good Hope	32°-40°	1376	1376	195	....	....	....	....
Sydney	41°-51°	1512	1512	1402	803	1512	....	....
Melbourne	52°-64°	1400	1400	705	....	....	....	....
.....	65°-90°	1149	1149	1104	....	1129	....	....

Realizing that the speedy completion of the catalogue is more desirable than that of the chart, the committee decided to divide the catalogue work of the La Plata zone, not yet begun, between the observatory of Santiago, the new observatory of Hyderabad, and, if necessary, the La Plata Observatory, to which it was originally assigned; while part of the catalogue work allotted to the observatory of Cordoba will be handed over to the Cape Observatory for completion.

The question of bringing into harmony the results obtained by the different observatories, which up to the present time have been working almost entirely independently, was one which presented itself to the committee for solution. At some observatories the diameters of the star-discs have been measured, at others the magnitudes of the stars have been estimated by comparison with the photographs of standard stars of known magnitude. The committee finally entrusted the formation of an absolute scale of magnitude to a commission of distinguished astronomers, including Professors G. E. Hale and E. C. Pickering from the United States. It is intended that the scale shall be photographic rather than visual. In the meantime, however, the various catalogues will appear as heretofore, each with its own scale of magnitudes, but the methods of determining the magnitudes will be described with such exactness that the translation to the absolute scale finally adopted may be performed without unnecessary trouble.

Other important resolutions were passed, dealing with the organization of a coöperative series of meridian observations on a new fundamental system of stars, and a more extensive system of intermediate stars, by means of which the faint comparison stars already chosen by the committee can be definitely and accurately connected with the fundamental stars. As, in some cases, the positions of the catalogue stars have been referred to comparison stars which have not been determined for years, and in others the comparison stars have been determined only recently, the importance of these resolutions cannot be over-estimated.

With the approach to completion of the work originally undertaken by the committee, other problems calling for international coöperation seem likely to fall within the scope of the committee. Such a problem is presented by the planet, Eros, discovered by Witt in 1897. The nearness with which the planet approaches the earth at opposition gives a peculiar importance

to observations made upon it at that time. At the opposition of 1900, Eros approached the earth within one-third of the mean solar distance and international observations made at that time have given us by far the most accurate measure of the solar parallax yet determined. At the opposition of 1931, Eros will approach even closer to the earth, its distance being then only one-sixth of the mean solar distance. Sir David Gill, in his presidential address at the Leicester meeting of the British Association in 1907, pointed out the importance of early preparation for thoroughly organized international coöperation at such a favorable opposition. Accordingly a committee, known as the "Eros Committee" was appointed for the following purposes: (1) To take steps for the preparation of an approximate ephemeris of Eros at the opposition of 1931 of sufficient accuracy to permit the selection of the most suitable comparison stars. (2) To devise means for the regular observation of Eros from this time forward in order to perfect the ephemeris that will be finally employed in the definite reduction of the observations of 1931. The duty of preparing (1) an approximate ephemeris of the planet for 1931, (2) precise ephemerides for the successive oppositions until 1931, and (3) an ephemeris of high precision for 1931, has been entrusted to Prof. Stromgren of the Copenhagen observatory. These, when completed, will be published in the *American Ephemeris* and other principal official ephemerides. As a result of the observations contemplated, it will be possible to obtain direct determinations of the solar parallax and the mass of the moon, and also a dynamical determination of the earth's mass by means of the perturbations which it produces in the orbit of Eros, which should far surpass anything that we have at present.

MINOR PLANETS. The surprising activity in the photographic exploration of the heavens, which marked the years 1906, 1907, and 1908, seems to have slackened, for the discoveries of the past year fell short of those of 1908 by about fifty. Of the 72 minor planets announced as new, and provisionally designated by the letters FL to JG, no less than fifty-nine were reported from Heidelberg by Wolf (13), and his assistants, Kopff (34), Helffrich (7), and Lorens (5). One of those reported by Lorenz (JA, discovered on November 9), had, however, been found two days earlier by Metcalf at Taunton, Mass. Of the remaining twelve, six fell to the share of the Greenwich observers, three to Palisa of Vienna,

three to Metcalf, and one to Boinot of Paris. JC proved to be identical with (50) *Virginia*, while GA turned out to be the seventh satellite of Jupiter; and doubtless others will be identified with discoveries of other years.

Permanent numbers, ranging from 660 to 674, were assigned to the following planets:

1908 CC (=660), CD, CW (*Newtonia*), D, G, DH, DK, DM, DN, DO, DQ, DR, DV, DY, EA, EP (*Rachel*, =674).

The numbers 645 and 655 have been transferred from 1907AB and 1907BS to 1907AG and 1907BF respectively, 1907AB having proved to be identical with (398) *Admete*, and 1907BS with (49) *Pales*.

OTHER EVENTS. Professor C. D. Perrine, astronomer at the Lick Observatory, has been appointed director of the Argentine National Observatory at Cordoba.

American astronomy was honored in the person of Dr. Geo. W. Hill, to whom the Royal Society of London has awarded its Copley Medal for his researches in mathematical astronomy. Dr. Hill was also the recipient of the Bruce Gold Medal, awarded by the Astronomical Society of the Pacific.

BOOKS. Among the more important works published during 1909 may be mentioned the following: Schuster, *Solar Research*; Maunder, *The Astronomy of the Bible*; Hale, *Some Recent Contributions to our Knowledge of the Sun*; Chambers, *The Story of the Comets*; Flammarion, *Astronomy for Amateurs*; *The Scientific Papers of Sir William Huggins*; Turner, *Modern Astronomy*.

ATHLETICS, TRACK AND FIELD. The thirty-fourth annual track and field contests of the Inter-Collegiate Amateur Athletic Association were held in the Harvard Stadium at Cambridge, Mass., on May 28 and 29. The largest number of points were scored by Harvard, whose athletes rolled up a total of 39 1-10. Yale was second, with 25 7-10 points, and Pennsylvania third, with 22½ points. Other colleges which scored points were: Cornell, 20½; Michigan, 14; Princeton, 7; Syracuse, 3; Swarthmore, 3; Haverford, 3; Dartmouth, 2½; Columbia, 2, and Brown 1. Three new records were made at the meet, as follows: Paull, of the University of Pennsylvania, won the mile run in 4 minutes, 17½ seconds; Taylor, of Cornell, won the two-mile run in 9 minutes, 27½ seconds, and Campbell of Yale, won the pole vault by attaining a height of 12 feet 3¼ inches. This vault was eclipsed, however, in 1908 at the Athletic Carnival held at the University of Pennsylvania when Dray, of Yale, vaulted 12 feet 6½ inches.

The University of Illinois won the meet of the conference colleges, held at Chicago on June 5, scoring a total of 36 points. Other point winners were: Leland Stanford, 28; Chicago, 21; Wisconsin, 11; Purdue, 8; Minnesota, 6; Colorado, 5; Western Reserve, 4; Miami, 4; Indiana, 4; Notre Dame, 3, and Knox 1. At the fifteenth annual athletic carnival, held on Franklin Field, Philadelphia, under the auspices of the University of Pennsylvania, the two-mile relay was won by Yale in the record time of 8 minutes, 2½ seconds. Chicago won the one-mile relay and Pennsylvania the four-mile. No records were broken in the special events. The principal dual college meets in 1909, with their scores, were: Yale, 55½; Harvard, 48½; Amherst, 64; Brown, 62; Williams, 81; Amherst, 43; Cornell, 76½; Princeton, 40½; Illinois, 73½; Chicago, 52½;

Haverford, 52½; New York University, 51½. Dartmouth won the New England College meet and Bowdoin the Maine College meet.

The senior championships of the Amateur Athletic Unions were held at Seattle on August 13 and 14. The Seattle Athletic Club won, scoring 45 points. Other teams and their scores were: Olympic Athletic Club, 30; Chicago Athletic Association, 26, and New York Athletic Club, 17. The junior championships were held at the same time and place, the Seattle Athletic Club scoring the greater number of points in these events also. The New York Athletic Club was second. A quadrangular meet between the New York Athletic Club, Boston Athletic Association, Chicago Athletic Association, and the Olympic Club of San Francisco was held at San Francisco on August 21. The Chicago Athletic Association scored 53 points, the Olympic Club 49 points, the New York Athletic Club 32 points, and the Boston Athletic Association 10 points. The all-round championship of the Amateur Athletic Union was contested for at Long Island City on July 5. It was won by Martin J. Sheridan, who scored a total of 7385 points, the highest number ever made in this event.

ATHREPTIC. See CANCER.

ATOMIC WEIGHTS. See CHEMISTRY.

AUGUB, JACOB ARNOLD. An American army officer, died April 18, 1909. He was born in 1849 and graduated from the United States Military Academy in 1869. In that year he served against the Indians in the west, and in the Ute expedition in 1879. He was instructor in the military academy from 1883 to 1887, and spent the ten years from the latter date in Indian Territory and Texas. In 1900-1 he served in the Philippines, and again in 1907. He was made colonel of the Tenth Cavalry in 1902.

AUSTRALIA, COMMONWEALTH OF. A British dependency consisting of a federation of six original states. The temporary seat of the Federal government is Melbourne.

AREA AND POPULATION. The area of the Commonwealth and the population (exclusive of aborigines), according to the census of March 31, 1901, and the estimate of December 31, 1908, are shown in the following table, by states:

States	Area, sq. miles	Pop., Mar. 31, '01	Pop., Dec. 31, '08
New So. Wales	310,372	1,354,846	1,605,009
Victoria	87,884	1,201,070	1,273,313
Queensland	670,500	498,129	558,237
South Australia	903,690	363,157	407,179
West. Australia	975,920	184,124	270,823
Tasmania	26,215	172,475	185,824
Co'nwealth	2,974,581	3,773,801	4,300,585

The estimated population of the capital cities was (December 31, 1908): Melbourne, V., 101,250; with suburbs, 549,200; Adelaide, S. A., with suburbs, 179,793; Brisbane, Q., within 10-mile radius, 137,670; Hobart, T., with suburbs, 44,610; Sydney, N. S. W., 127,460; with suburbs, 592,100; Perth, W. A., with suburbs, about 54,000.

In New South Wales there were, in 1908, 45,525 births, 16,090 deaths, and 12,642 marriages; in Victoria the birth-rate was 24.58, the death-rate 12.46, and the marriage-rate 7.38 per thousand inhabitants; in South Australia, birth-rate 24.73, death-rate 9.72, and marriage-rate 7.89. The reported immigration to the Commonwealth in 1907 was 71,988; in 1908, 75,671.

EDUCATION. Public education is entirely under the control of the separate states. Primary instruction is free and compulsory. In New South Wales there were 3135 State schools in 1908, with an enrollment of 233,124, and an average attendance of 156,000. The State expenditure on education, science, and art was £1,191,617. The University of Sydney, with over 1000 students, receives a State subsidy. In 1908 there were 792 private schools, with 57,111 pupils. In Victoria the public primary schools had 4721 teachers, an enrollment of 231,759 pupils, and an average attendance of 147,270 in 1907. There are various State institutions for special and technical instruction, and the University of Melbourne, with about 900 students, receives State aid. In Queensland, in 1908, there were 1104 State schools, with 2413 teachers and an average attendance of 67,309 pupils; and 167 private and grammar schools, with an average attendance of 12,898. The State also maintains secondary schools and institutions for special and technical instruction. In South Australia there are reported 707 State schools, with 1389 teachers and 54,560 pupils. Private schools (1907) numbered 209, with 710 teachers and 9381 pupils. Various local institutes, etc., are supported or assisted by the State. An endowed university at Adelaide has upwards of 360 students. A State school of mines and industries has also been established. In Western Australia there were in 1907 395 State schools, with an enrollment of 29,074 pupils and an average attendance of 24,950; and 102 private schools, with an enrollment of 7639 pupils and an average attendance of 6358. In Tasmania public primary schools in 1907 numbered 356, with 25,157 pupils enrolled; private primary schools, 204, with 8830 pupils enrolled. There are 16 superior schools, with an average attendance of about 2000; two technical schools, with (1907) 114 students; and two schools of mines, with (1907) 549 students.

In New South Wales the mineral production in 1908 was valued as follows: Gold, £954,854; silver, £253,920; copper, £502,812; tin, £205,447; coal, £3,353,093; other, £3,114,023; total, £8,384,149. Up to the end of 1908 the total gold output in New South Wales was valued at £56,319,736. In Queensland, the value of the 1908 mineral production was: Gold, £1,975,554; silver, £117,889; copper, £882,901; tin, £342,191; coal, £244,922; other, £281,030; total, £3,844,487. Up to the end of 1908 the value of the gold output in Queensland was £68,200,083.

MINERALS. In Victoria gold mining is of first importance. The gold production of 1908 amounted to 721,220 ounces, valued at £2,949,838. The value of the gold produced from its discovery in 1851, in Victoria, to the end of 1908, was £282,321,433. Other minerals produced include coal, tin, copper, and antimony. In South Australia, copper, gold, silver, lead, manganese, bismuth, iron, and coal are found. In 1907 the total mineral production was valued at £913,863, of which £714,525 represented copper and £36,602 gold. In Western Australia are the largest and most productive of the Australian gold fields. Gold was discovered there in 1886; from that date to the end of 1908 the output amounted to 20,011,698 fine ounces, valued at £85,004,290. The production in 1908 amounted to 1,647,912 fine ounces, valued at £6,990,885; in the first seven months of 1909,

915,189 ounces. Other mineral deposits in the State include magnetic iron ore, lead, copper, and tin. The total mineral output in 1907 was valued at £7,634,066. In Tasmania the total mineral production in 1907 was valued at £2,277,159, of which £869,666 represented copper, £501,681 tin, and £277,607 gold. For the Commonwealth the total value of mineral production in 1907 is stated at about £28,400,000, of which over £13,500,000 represented gold, about £3,523,000 copper, and £3,329,500 coal.

AGRICULTURE. In New South Wales the reported number of acres under cultivation is 2,717,085, the chief products during the year ended March 31, 1909, being as follows: Wheat, 15,483,276 bushels; corn, 5,216,038 bushels; oats, 1,119,113 bushels; potatoes, 71,794 tons; sugar-cane, 144,760 tons; tobacco, 5268 cwt.; wine, 736,262 gallons; citrus fruits, 654,001 cases. The total extent of land alienated and in process of alienation on June 30, 1908, was 51,106,748 acres. On December 31, 1908, the estimated number of live-stock was as follows: Dairy cows, 775,693; other cattle, 2,173,591; sheep, 43,329,384; horses, 590,557; swine, 215,652. In 1908 wool was produced to the amount of 338,129,000 pounds (in the grease), valued at £12,680,000. In Victoria in the agricultural year 1909, 1,779,905 acres were under wheat, 956,371 acres were cut for hay, 419,869 acres were under oats. Wine production was 1,437,106 gallons. In 1908 the total cultivated area aggregated 4,127,000 acres, the principal crops being: Wheat, 1,847,000 acres, producing 12,101,000 bushels; oats, 399,000 acres, 5,201,000 bushels; barley, 63,000 acres, 1,059,000 bushels; potatoes, 54,000 acres, 135,000 tons; hay, 682,000 acres, 682,000 tons. The estimated number of dairy cows at the end of 1908 was 609,166, producing 48,461,398 pounds of butter and 4,328,644 pounds of cheese. At the end of 1907 the total estimated number of cattle in Victoria was 1,842,807 (including 709,279 milch cows); horses, 424,648; sheep, 14,146,734; swine, 211,002. The wool clip in the season of 1908-9 amounted to 93,082,341 pounds, valued at £3,880,000. In 1907 the total agricultural production was valued at £8,375,454, and the total pastoral and dairying production, £12,165,276. Of Victoria's total area, about 27,417,000 acres are alienated or in process of alienation. In Queensland the total area of arable land in 1908 was 733,256 acres, of which 535,900 acres were under crop, yielding a value of £3,462,146. The acreage, yield, and value of the more important crops in 1908 were as follows: Sugar-cane, 92,219 (exclusive of 31,683 acres unproductive), yielding 1,433,315 tons, valued at £933,730 (the sugar produced amounted to 151,098 tons); corn, 127,655 acres, 2,767,600 bushels, £599,647; green forage, 87,675 acres, £438,375; wheat, 80,898 acres, 1,202,799 bushels, £300,700; alfalfa, 48,247 acres, 72,196 tons, £288,784; oaten hay, 9314 acres, 11,600 tons, £92,800; potatoes, 6227 acres, 11,550 tons, £92,400; pineapples, 2171 acres, 598,794 dozens, £84,829; oranges, 2072 acres, 440,312 bushels, £77,055; grapes, 1616 acres, £35,415; pumpkins, 9581 acres, 33,925 tons, £33,925; wheaten straw, 12,086 tons, £33,236. The estimated number of live-stock at the end of 1907 and 1908 respectively were: cattle, 3,892,232 and 4,321,600; sheep, 16,738,047 and 18,348,851; horses, 488,486 and 519,969; swine, 133,246 and 124,749. The wool clip (greasy) in 1907 amounted to 99,461,711

pounds; in 1908, 110,545,577 pounds. Cattle slaughtered in 1908 are reported at 243,069; sheep, 656,297; swine, 134,854. The value of slaughter-house products was £1,181,778. The milk production in 1908 amounted to 63,934,402 gallons; butter, 23,838,357 pounds; cheese, 3,199,510 pounds. Of Queensland's total area, 19,703,325 acres were alienated or in process of alienation at the end of 1907. In South Australia the area under cultivation in 1908 was reported at 3,442,295 acres (including 1,097,186 acres lying fallow), including 1,693,501 acres planted to wheat; hay, 424,924 acres; oats, 78,494 acres; barley, 44,911 acres; potatoes, 8083 acres; vines, 20,855 acres. Wheat production in 1908-9 amounted to 19,397,672 bushels. Citrus fruits, almonds, and olives are profitable crops. The estimated wine output for 1909 was 2,500,000 gallons. In 1908 the estimated number of live-stock was: Cattle, 340,376; horses, 213,385; sheep, 6,898,451. Of the total area (including the Northern Territory), 9,926,534 acres were alienated or in process of alienation at the end of 1907. In Western Australia, the area under crop in 1908 was 494,987 acres. The principal crops were: Wheat, 279,009 acres, yielding 2,925,690 bushels; oats, 457,155 acres, 721,753 bushels; hay, 131,056 acres, 137,511 tons; potatoes, 1854 acres, 5671 tons. In 1909 284,357 acres were under wheat. Mining continues to be the chief source of the State's wealth, but agricultural and pastoral conditions are improving. In 1907 the live-stock consisted of 113,330 horses, 757,077 cattle, 3,684,974 sheep, 53,399 swine, 26,833 goats, and 3212 camels. The wool clip in 1907 amounted to about 20,210,000 pounds, valued at about £812,000. On June 30, 1908, of the State's total area 14,002,939 acres were alienated or in process of alienation. In Tasmania 269,446 acres were under crop on March 1, 1909, and 491,423 under artificially sown grasses. The wheat acreage was 29,103. The acreage and yield of the chief crops in the agricultural year 1908 were: Oats, 54,625 acres, 1,526,002 bushels; wheat, 30,794 acres, 644,235 bushels; potatoes, 54,625 acres, 145,483 tons; hay, 73,859 acres, 98,406 tons. Fruit culture is important. The estimated number of live-stock on March 31, 1909, was: Cattle, 205,827; horses, 39,281; sheep, 1,723,503; and swine, 47,945. The wool clip for 1907 was estimated at 9,596,400 pounds. Of Tasmania's total area, 5,602,422 acres had been sold or granted to settlers up to the end of 1907, and 1,255,354 leased as sheep runs. See IRRIGATION.

MANUFACTURES. Only a few manufacturing industries, except those concerned with the treatment of perishable materials, have attained any considerable degree of development. The more important manufactured products are preserved meats, sugar, wine, spirits, flour, preserved fruits, beer, butter, cheese, etc. In connection with the mines, there are works for ore reduction, and a few iron and steel factories, machine shops, etc., have been established. The leading manufacturing States are Victoria and New South Wales. In Victoria the total number of manufactories, etc., in 1907 was 4530, with an aggregate horse-power of 52,703 and 90,903 persons employed. The lands, buildings, machinery, and plant were valued at £15,148,100; materials used, £18,632,439; output and labor £30,399,945. In New South Wales, in 1907, the reported number of fac-

ories was 4387, representing investments amounting to £13,265,000. The number of employees was 87,194. In Queensland, in 1908, there were 1479 factories; employees 29,510; value of plant and machinery, £4,484,340; value of land and premises, £2,808,563; value of output, £11,242,437.

COMMERCE. Imports and exports of the Commonwealth have been valued as follows:

	1906	1907	1908
Imports	£44,744,912	£51,809,033	£49,786,798
Exports	69,737,763	72,824,247	64,311,058

Of the total export values in 1906 and 1907, respectively, £66,299,874 and £69,816,500 represented Australian produce. In 1907 the more important imports included: Metal manufactures, £5,004,983; cotton and linen goods, £3,626,658; apparel, etc., £3,255,058; machines and machinery, £2,760,211; iron and steel, £2,388,697; woollens, £2,349,285; drugs, chemicals, etc., £1,840,933; silk goods (including velvets), £1,753,908; timber, £1,632,055. The leading exports in 1907 were: Wool, £28,891,830; gold specie, £5,411,572; wheat, £4,801,722; gold bullion, £4,036,067; copper and copper ore, £3,601,812; butter, £2,890,261; hides and skins, £2,782,805; spelter, etc., £1,478,664; mutton, £1,377,502; coal, £1,299,052; flour, £1,296,252; silver bullion, etc., £1,191,907; tin, £1,122,341; tallow, £1,017,047. Imports from and exports to the countries commercially most important were, in 1907:

Countries	Imports	Exports
Great Britain	£31,906,447	£33,975,579
United States	5,869,099	2,405,401
Germany	3,551,255	5,140,380
New Zealand	2,585,264	2,565,021
India	1,948,566	2,494,414
Belgium	1,000,377	5,716,069
Ceylon	755,444	3,962,420
Japan	541,286	706,279
France	486,550	8,148,980

In the foreign trade, imports and exports, respectively, of the several States were as follows, in 1907: New South Wales, £20,860,391 and £29,363,727; Victoria, £17,101,022 and £15,924,405; South Australia, £4,815,459 and £9,269,983; Queensland, £4,617,439 and £7,118,364; Western Australia, £3,587,548 and £8,592,117; Tasmania, £827,174 and £2,555,651. Including interstate trade, the imports and exports of the several States were as follows, in 1908:

States.	Imports.	Exports.
New South Wales.....	£37,642,746	£40,985,759
Victoria	27,197,696	27,196,201
South Australia.....	11,231,470	13,778,534
Queensland	9,471,166	12,194,977
Western Australia.....	6,178,197	6,518,020
Tasmania	3,371,862	4,030,766

COMMUNICATIONS. The total length of railways in the Commonwealth on June 30, 1907, is stated at 15,250 miles. The length of telegraph lines in that year was 43,384 miles and the number of post-offices 7521. In New South Wales, on June 30, 1909, there were open to

traffic 3623 miles of government railway and 81 miles of private railway. The telegraph offices 1278, with 15,910 miles of line and 82,249 miles of wire. Post-offices numbered 2319. In Victoria, on June 30, 1908, 3447 miles of government railway were complete; telegraph offices, 1212, with 7037 miles of line. In South Australia, at the end of 1908, 1879 miles of government railway were open to traffic, and 145 miles in the Northern Territory. In Queensland, at the end of 1908, government railways in operation aggregated 3498 miles. In Western Australia, in 1909, the railway open to traffic was reported at 2741 miles. In Tasmania, in 1909, the reported length of railway was 620 miles; the number of telegraph offices, 328, with 4082 miles of wire (including 432 miles of submarine cable). In 1907 the total overseas shipping, entered and cleared at the ports of the Commonwealth, amounted to 8,822,866 tons; in 1908, 8,581,151 tons.

FINANCE. In the fiscal year ending June 30, 1908, the revenue of the Commonwealth amounted to £15,015,798; expenditure, £6,158,893; surplus paid to the States, £8,859,596. In the fiscal year 1909, revenue amounted to £14,349,835; expenditure, £6,419,364; surplus paid to the States, £7,927,134; balance, £3337. Of the revenue for the latter year, £10,843,085 were derived from customs and excise; £3,409,007 from posts, telegraphs, and telephones; and £96,843 from miscellaneous sources. The expenditures were: Posts and telegraphs, £3,027,048; "new" expenditure, £1,531,074; defense, £916,757; public works, £666,713; trade and customs, £277,288; miscellaneous, £484. For the fiscal year 1910, the estimated revenue was £14,555,765, exclusive of £1,200,000, proceeds of sale of treasury bonds; the estimated expenditure was £7,867,621, and the estimated surplus for distribution among the States, £7,891,481. The revenue and expenditure, respectively, and the debt of the separate States are reported as follows: New South Wales, for the fiscal year 1909, £13,625,071 and £12,882,607; debt at end of year, £90,307,419; Victoria, for fiscal year 1908, £8,314,480 and £7,862,246; debt at end of year, £53,180,487; South Australia, for fiscal year 1908, £3,654,660 and £3,171,000; debt at end of year, £29,985,858; Queensland, for the calendar year 1908, £4,608,956 and £4,643,667; debt at end of year, £39,568,827; Western Australia for fiscal year 1909, £3,816,271 and £3,906,839; debt at end of year, £21,951,753; Tasmania, for fiscal year 1909, £934,405 and £960,237; debt at end of year, £1,039,770. The total debt of the States on June 30, 1908, was £243,335,489. See paragraphs on *History*.

GOVERNMENT. The Commonwealth consists of a federation of the six former colonies of Great Britain, now called "Original States." New South Wales, Victoria, South Australia, Queensland, Western Australia and Tasmania. The executive authority is vested in a governor-general, who is appointed by the Crown and is assisted by an executive council of seven ministers. The legislative power devolves upon a Parliament of two houses, the Senate (36 members, six from each State, elected by popular vote for six years), and the House of Representatives (75 members, elected by popular vote for three years). The State Parliaments are elective, but the State governors are appointed by the Crown. The Governor-General in 1909

(from September 9, 1908) was the Earl of Dudley. The Commonwealth ministry in 1909 was constituted as follows: Premier, Alfred Deakin; Treasurer, Sir John Forrest; Minister for Trade and Customs, Sir Robert W. Best; External Affairs, Littleton E. Groom; House Affairs, George Warburton Fuller; Defense, Joseph Cook; Attorney-General, P. McMahon Glynn.

ARMY AND NAVY. The military system of the Commonwealth was under much discussion in 1908 and 1909, with a view to secure compulsory service for all males between the ages of 16 and 26 by means of cadet corps and a national guard. The establishment, as organized in 1909, consisted of a garrison force of 12,000 for both peace and war, and a field force whose peace strength was half that on a war basis, and consisted of 6500 light-horse, with 24 guns and 7500 infantry with 36 guns. Including the garrison troops, the gross strength on a peace basis would be 26,000 and on a war footing 40,000. In addition there would be available the following troops partly trained; 7000 (approximately) light-horse, cadets 9103, and rifle club members 28,721, making a grand total of all forces of 2400 officers and 60,000 men. See paragraph below on *Defense Policy*.

The British fleet stationed in Australian waters, with headquarters at Sydney, consisted in 1908 of twenty cruisers and minor vessels aggregating 47,000 tons. To its maintenance Australia contributes £200,000 annually. See paragraphs on *History*.

HISTORY

IMMIGRATION QUESTION. One of the chief questions in 1909, as in previous years, concerned the opening up of the country to development by means of immigration. There was great need of properly situated lands for immigrant farmers. It was a common subject of complaint that immigrants were compelled to go far into the interior for settlement, passing on the way fine lands which were not under production, being held by individuals for speculative purposes. The absentee landowners were severely blamed. The difficulty was enhanced by the unwillingness of the States to cooperate with the Federal government, or with one another. Australia's need, moreover, was for agricultural immigration, and early in the year the situation was complicated by the danger of an influx of artisans and clerks, for whom work could not be found. The former Premier, Mr. Reid, in March declared himself strongly in favor of aiding immigration, but since even Australians themselves could not get land on account of the large unused private estates, he favored State resumption of lands, upon due notice after valuation, unless within a fixed period the owners cut up the lands for closer settlement. Much has been said on this subject, both by the press and the government officials, during recent years. It has been argued that by immigration alone can the policy of protection, defense, and a "White Australia" be maintained. The Labor party has been blamed for discouraging immigrants, and for the passage of laws which hampered them, apparently for the purpose of keeping Australia for its own people and maintaining the rate of wages. On the other hand, in Victoria, where the Anti-Socialist party has been in control since

the Federation, and the upper house requires, as a qualification for its members, that they shall hold land, the net loss by emigration in 1901-6 was 54,000, and the rural population was less than forty-one per cent. of the total. Only a very small sum had been spent for furthering immigration. Here, as in other parts of Australia, the greatest difficulty lay in the locking up of land which was owned in large parcels by the descendants of original settlers. The landowners, especially the absentees, were not in sympathy with the policy of closer settlement, since the lands were held chiefly for cattle-raising and sheep-raising. The cutting up of land for closer settlement proceeded very slowly. There were complaints in New South Wales that people who wanted land had to go into the back country, that the government was slow in making land available, that the lands were unsurveyed, and the cheaper tracts not yet ready. The government planned to import two thousand skilled farm hands in addition to domestic servants and unskilled farm laborers, but without any guarantee as to wages. The attitude of the Labor party in New South Wales toward immigration was favorable, provided the immigrants were of the right quality, and so long as land was available, but it did not approve of assisting immigration unless immigrants would become producers. The Labor party held that to spend money at the present time for the assistance of immigrants would raise land prices against the native settler, since it would increase, in proportion to the numbers and demands of the newcomers, the value of the land that was already privately held. Thus the Labor party did not approve of state-aided immigration under present conditions.

DEFENSE POLICY. The two chief features of the new Ministry's programme were defense and finance. Early in the year Premier Fisher declared that the question of defense was whether Australia was willing to pay or not. There was no chance of defense, he said, unless Australia would coöperate with Great Britain. Compulsory training was an essential part of the system. Early in February the Federal government decided upon the building at once of two torpedo boat destroyers out of the money voted in 1908. This was regarded as a pledge that the Fisher Ministry would put through the scheme of defense, including compulsory military training. Early in March it was announced that the plan for an Imperial General Staff, so modified as to give the Commonwealth control of its own offices, was accepted by the Federal Cabinet. On March 3 the ministerial programme was definitely announced by the Premier. The plan for naval defense comprised the building of four ocean destroyers and sixteen river destroyers, in addition to those already ordered, to be built in Australia within three years at a cost of £747,000 the first year, £1,012,000 the second year, and £884,000 the third year; the assumption by Australia of its coast defense relieving the Admiralty of the cost of training the present squadron; and the offer of Australia to furnish all torpedo craft, scout and dispatch boats if the Imperial fleet visited Pacific waters. The plan for land defense was to take effect at the beginning of 1910. It was based on the principle of universal compulsory military training. The cost was to be met by a progressive land tax. Public opinion as to the best means of Imperial defense was di-

vided, some favoring exclusively the *Dreadnought* solution, others adhering to the Premier's scheme which, in its later form, offered to place the squadron under the Admiralty. The reactionary element desired the giving up of compulsory training and the plan for the local squadron. On the opening of the Federal Parliament, on May 26, the Governor-General referred to the Imperial Defense Conference and to the General Imperial Staff, and said that the building of three destroyers had been arranged for, and that Parliament would be asked to authorize naval construction and the training of crews; also, that the plan for an effective citizen defense force would be submitted to Parliament. The Opposition, which came into power with Mr. Deakin's Coalition Ministry, had taken issue with the Fisher government on the *Dreadnought* question, blaming it for not giving the *Dreadnought* to Great Britain in the name of the Commonwealth. It favored an Australian flotilla, but did not think this should prevent the gift of a *Dreadnought* in the present emergency. There was a tendency, after the new government's assumption of office, to urge the Ministry to treat the subject of defense as a matter outside of politics and make its policy depend on the decisions of the approaching Imperial Defense Conference. Early in June Premier Deakin telegraphed to the home government the offer of a *Dreadnought* or of an equivalent naval contribution. Opinion was divided throughout the Commonwealth as to the *Dreadnought* offer. Victoria favored it. New South Wales was lukewarm, fearing that the *Dreadnought* offer might be taken as a substitute for a scheme of local defense. Queensland and South Australia were adverse. In July Mr. Cook, the new Minister of Defense, in a public statement declared in favor of a local squadron, providing it became the Australian section of the Imperial Navy. The Australian offer of £2,000,000 was, he said, unconditional. He declared his determination to make the present force efficient by means of training-schools, etc., appropriating the necessary funds for the purpose. The platform of the new Coalition Ministry included, among its principal features, universal military training to begin in the schools, and some sort of coast defense. In June the defense situation was summed up by Colonel Foxton, the Australian delegate to the Defense Conference. He declared that Australia had no desire to meddle with the naval agreement that had been in force since 1903; that Australia was now preparing for local defense and the protection of coast routes, for which three river class torpedo boats were now building. It was hoped that this would form the nucleus of a future Australian navy, which in turn would be a part of the Imperial sea force. It would be kept up well, and, if feasible, the Imperial and Australian officers would be interchanged. The *Dreadnought* offer was declared to be unconditional. Opinion in Australia seemed to be in favor of the locally owned squadron. Some offense was caused by the home government's rejection of a scheme submitted for such a flotilla in 1906 and the Admiralty plan, which was brought back from the Imperial Defense Conference, was viewed with some suspicion. In general, popular opinion inclined to Australian participation in Imperial Defense, but was divided on the question whether this should take the form of a contribution of

Dreadnoughts, or of a provision for efficient local defense. On August 21 it was announced that the Australian squadron would consist of about six cruisers, nine destroyers and a small flotilla of submarines. An important feature of the government's naval proposals was the interchange of Australian ships and crews with those of the home country.

As to military defense, the bill of Mr. Cook, the new War Minister, was brought in on September 21. It provided for compulsory training between the ages of twelve and twenty; the junior cadets to give 120 hours a year to physical drill, marching and rifle practice for two years; the senior cadets, 96 hours a year for four years; citizens, sixteen whole-day drills for two years, and the naval artillery and engineer training to last twenty-five days instead of sixteen; men between the ages of twenty and twenty-six to attend one parade a year. The cadet training was to begin in 1911 and the citizen training in 1912, the only exemption being unfitness or non-European descent. The penalty for shirking military duty was to be not less than £5 and not more than £500. It was estimated that this arrangement would provide for 40,000 junior cadets, 75,000 senior cadets, and 55,000 citizens under twenty-one. The militia, which numbered 25,000, was henceforth to be recruited only from these trained men. It was expected that after 1916 the first line would be 50,000 strong, the second 50,000, and the third 140,000. The sum of £2,000,000 was required yearly for defense, including this training scheme. A compromise measure was drawn up, making some concessions to those opposed to compulsory training. The new Defense Bill gave effect to the decisions of the recent Imperial Conference, providing, on Australia's part, for the defense of the Pacific one *Indomitable*, three protected cruisers of the *Bristol* type, six destroyers, three submarines, and auxiliary vessels. The officers and men were to number 2300. It was expected that the vessels for the Australian fleet, which would replace the Imperial Australian Squadron, would be ready by June 1, 1912. The details of the naval defense plan had been arranged between the Australian delegate to the Imperial Conference, Colonel Foxton, and the Admiralty. The naval power of the Admiralty was to pass over to the Commonwealth government. On November 23 the House of Representatives passed a resolution approving the government's naval proposals, and declaring that immediate steps should be taken to prepare the Australian naval unit. Early in December the Defense Bill and a Naval Loan Bill, which authorized the placing of a loan to carry out the shipbuilding programme, passed both Houses. The Australian government invited Lord Kitchener to visit the Commonwealth, and advise as to measures of military defense. Lord Kitchener accepted the invitation and left India for his Far Eastern trip in September.

PARTY POLITICS. The general election of December, 1906, left the three political parties in about the same relative strength as before, and Mr. Alfred Deakin, who had been Premier since July, 1905, continued as chief of the Cabinet. The government was obliged to depend for its support upon the Labor party which, after the elections of December, 1906, numbered 26 as against 19 Conservatives, 14 Anti-Labor members, who supported Mr.

Deakin's financial policy, and 16 Liberals, who followed Mr. Reid. Both the Labor party and the followers of Mr. Deakin supported the principle of the "new protection," that is to say a protection so ordered as to benefit only those industries which conform to certain requirements as to wages and as to manufacturing processes. Other features of the Labor party's programme were the making of a "White Australia," the promotion of Federal unity, and the extension of State control in economic and industrial matters. The principle of the "new protection" was embodied in the Federal Excise Tariff Act passed in 1907. Its constitutionality came in question in 1908 and the Federal high court decided in June of that year that the regulation of wages by excise duties was *ultra vires*. The alliance of the government with the Labor members aroused strong objections, and finally in November, 1908, the Labor members having withdrawn their support, the Deakin Ministry was overthrown, and a Labor Cabinet was formed by Mr. Fisher. The new Labor Ministry soon showed signs of weakness. The Federal Parliament was opened May 28 by the Governor-General Lord Dudley. In addition to the defense programme above-mentioned, the government announced its project for the progressive taxation of unimproved land for the purpose of subdividing estates and furthering an increase of population; and promised to offer an amendment to the constitution to admit of legislation on behalf of the "new protection," that is to say, to enable the government to protect consumers, and insure fair wages, to extend its jurisdiction over trusts and combinations, and to nationalize monopolies. The government also promised to introduce a measure for the appointment of a High Commissioner to London. As to finances, it was announced that in spite of the decrease in customs and postal revenues, arrangements had been made to pay old age pensions by July 1. The new financial obligations, which would be heavy, would be referred to Parliament, as would also the financial relations between the Commonwealth and the States. Proposals would be made for a Commonwealth paper and silver currency. An attempt had already been made to form a coalition of the three opposition groups against the new Ministry. This was difficult owing to the divergent views on the subject of defense and other matters, some wishing to give up the plan for compulsory training and for a local flotilla, some favoring and some opposing the "new protection" idea as well as the financial supremacy of the Commonwealth government over the States. A coalition was, however, formed soon after the meeting of Parliament for the temporary purpose of overthrowing the Ministry. On May 27 the government was defeated on a motion to adjourn by a vote of 39 to 30. The Fisher Ministry resigned, and a coalition under Premier Deakin consisting almost entirely of Moderates was formed. Parliament was adjourned to June 23.

THE NEW MINISTRY. The new government announced its programme at its reassembling on June 23. This consisted of a promise of a measure for an Interstate Commission with the functions of a Board of Trade and a Federal Imperial Bureau including supervision over the customs tariff; an active immigration policy; the appointment of a High Commissioner to

London; and universal training as the basis of the government's land defense policy. Ex-Premier Fisher's motion of want of confidence was rejected by 36 to 24. Later a more definite statement as to the platform of the coalition was issued. The principal features in its policy were the maintenance of the present protective tariff unchanged; a Federal Interstate Commission, which was to decide questions relating to unfair rates referred to it by the State arbitration courts or wage boards; universal military training; a plan for coastal defense; the recognition of Imperial responsibilities; and the postponement of the financial question impending between the Commonwealth and the States. Like most compromises this did not meet fully any party's wishes. The coalition was described as "fusion without principle." On August 12 Sir John Forrest, the Commonwealth Treasurer, introduced the budget. The revenue for 1909-10 was estimated at £14,556,000; the expenditures at £7,868,000, and the amount due the States at £7,891,000. The bill for taking over the Northwest Territory was read for the second time on October 16. The Defense Bill also reached its second reading at this date. The territory included in the former comprised an area equal to that of France, Germany, Belgium, Switzerland and Italy combined. The bill appointing a High Commissioner to London which reached its second reading early in September, was subsequently carried and early in December it was announced that Sir George Reid had been selected for that office.

FISCAL ARRANGEMENT WITH THE STATES. A change of the "Braddon clause," which provided that out of the Commonwealth's custom and excise revenues the States should receive during the first ten years of the existence of the Commonwealth, at least three-fourths and as much more as the Commonwealth did not use, had long been under consideration. These payments would cease on January 1, 1911, unless a new arrangement were made. Conferences of the Premiers were held in March and in August. At the August conference, which was held at Melbourne in the latter part of that month, an agreement was reached by which, instead of the three-fourths which had been hitherto returned to the States, a per capita payment of 25s. was provided. Western Australia was to receive an extra annual contribution of £250,000, decreasing by £10,000 each year until it ceased. It was provided that until the terms of the arrangement became operative £600,000 should annually be deducted from the payments to the States for old age pensions. This awaited ratification by Parliament and by a referendum. There was some doubt as to the result. A lower figure had been accepted than what was previously demanded by the State Premiers. It was pointed out that the new arrangement would make a permanent charge on the customs revenues in favor of the States and defer the consolidation of the debts, but that on the other hand the Commonwealth gained thereby a temporary increase of revenue and the right to dispose in the future of the greater part of the revenue as it saw fit. On September 8 the new Premier asked leave to introduce a bill for the necessary change in the constitution to permit the per capita payment to the States instead of the return of the customs revenue and to authorize the federaliza-

tion of the State debts. This measure, known as the Financial Arrangement Bill, passed its third reading in the House of Representatives in November.

CONGRESS OF CHAMBERS OF COMMERCE. The seventh Congress of the Chambers of Commerce of the empire was opened at Sydney on September 14. Important questions discussed by it were Imperial protection, reciprocity between parts of the empire, preference, an advisory Imperial Council to consider questions of Imperial interest, especially for the promotion of trade between parts of the empire, an Imperial telegraph line, including a complete Imperial route between Great Britain and Canada, Australia and New Zealand, by means of a state-owned line across Canada to Great Britain. On these points resolutions were adopted. The Congress ended on September 24. The results indicated, as had been expected, a strong majority for Imperial preference. This seemed to conform to the general opinion of the public, although leading Australian newspapers were indifferent, and some of the Chambers of the leading cities were neutral. The delegates from the London Chamber of Commerce for the first time assented to the principle of preferential trade. Although public opinion in Australia inclined to preference there was much complaint that British producers would not adapt themselves to the needs of Australian consumers. As to the State ownership of an Imperial telegraph line, the decision of the Congress was in accord with that of the Imperial Press Association, which met in England, and of the Australian Press Association, which at its August meeting endorsed the resolution of the former for state ownership of cables and telegraphs across the Atlantic and Canada.

OTHER EVENTS. A serious industrial dispute arose at Broken Hill mine, which, however, was adjusted early in March. The settlement of this dispute was important as founded absolutely on the principle of the living wage, the judge having declared that he had investigated the conditions of living at the mine and concluded that a certain sum represented the minimum wage. Thus the principle of a living wage was recognized as embodied in the commercial law of the Commonwealth. The New South Wales legislature agreed to cede to the Commonwealth government 800 square miles of the Yass-Canberra district for the Federal capital, control of rivers for water supply over an additional territory of 510 square miles, together with two square miles at Jervis Bay to give access to the sea, and the right to build a railway to that point and to connect with the Goulburn-Cooma State Line. A matter much discussed in Australia during 1909, as well as in previous years, though not forming a question of practical politics, was the question of unification. The opinion was gaining ground in certain quarters in favor of greater centralization. It was desired that the Federal Parliament should be the supreme authority delegating to the provinces only the necessary powers, and that new provinces should be created in place of the present States, which do not correspond to the differences of the respective populations, but represent merely arbitrary boundaries. The criticism of the present organization of the Australian State was that the governmental machinery of fourteen Houses of Parliament was too cumbrous for the needs of the country

with its scanty population of 5,000,000. The unifiers looked with favor upon any step that tended to increase Federal power.

AUSTRIA-HUNGARY. A constitutional monarchy of Central Europe, consisting of the Austrian Empire and the Hungarian Kingdom, united under one sovereign, besides the common territory of Bosnia and Herzegovina (annexed October 5, 1908). The capital of Austria is Vienna, and of Hungary, Budapest.

AREA AND POPULATION. The area of Austria is 115,905 square miles; of Hungary, 125,608 square miles; of Bosnia and Herzegovina, 19,702 square miles; total, 261,215 square miles. According to the census of December 31, 1900, the population of Austria was 26,150,708, and of Hungary, 19,254,559. Included in the figures for Hungary are Croatia and Slavonia, with 16,410 square miles and 2,416,304 inhabitants. On December 31, 1907, estimated population was as follows: Austria, 27,995,986; Hungary, 20,469,157 (including Croatia and Slavonia, 2,469,157); Bosnia and Herzegovina, 1,828,379; total, 49,292,522. According to this estimate, the Austrian provinces having the largest populations were: Galicia, 7,908,504; Bohemia, 6,659,410; Lower Austria, 3,449,378; Moravia, 2,572,271; Styria, 1,425,196; Tyrol, 901,182; Upper Austria, 837,005; Bukovina, 791,820; Silesia, 744,742. According to language, the population was divided as follows, December 31, 1900:

	Austria	Hungary	Monarchy
German	9,170,939	2,135,181	11,306,120
Hungarian	9,516	8,742,301	8,751,817
Bohemian, Moravian, and Slovak	5,955,397	2,019,641	7,975,038
Polish	4,259,152	.....	4,259,152
Ruthenian	3,375,576	429,447	3,805,023
Croatian and Serbian	711,380	2,730,749	3,442,129
Slovenian	1,192,780	98,941	1,291,721
Rumanian	230,963	2,799,479	3,030,442
Italian and Latin	727,102	27,482	754,584
Foreigners in Austria	517,903	.....	517,903
Others .....	.....	271,338	271,338
Total	26,150,708	19,254,559	45,405,267

The 1900 census showed the following religious divisions of the people:

	Austria	Hungary	Monarchy
Roman Catholics	20,660,279	9,919,913	30,580,192
Greek and Armenian Catholics	3,136,535	1,854,143	4,990,678
Orthodox Greeks	607,462	2,815,713	3,423,175
Evangelical, Angs.	365,454	1,288,942	1,654,396
Evangelical, Helv.	128,557	2,441,142	2,569,699
Unitarians	104	68,568	68,672
Jews	1,224,899	851,378	2,076,277
Others and without Confession	27,418	14,760	42,178
Total	26,150,708	19,254,559	45,405,267

In 1907 there were in Austria 209,513 marriages, 966,601 births (including still-births), and 654,678 deaths; in Hungary, 201,431 marriages, 755,653 births (including still-births), and 518,614 deaths. Of the births in Hungary, 14,786 were still-births and 72,628 illegitimate. In Austria in 1905 of the total births, numbering 945,978, 24,214 were still-births and 119,163 illegitimate. The emigration of Austrians in 1907 is reported at 177,354; of Hungarians, 209,174; over 90 per cent. went to the

United States. The largest cities, with estimated population on December 31, 1907, are: in Austria—Vienna, 2,064,037; Prague, 229,965; Lemberg, 185,546; Gratz, 159,825; Trieste, 219,922; Brunn, 121,317; Cracow, 108,031; in Hungary—Budapest, 913,018; Szegedin, 116,158; Maria-Theresiople (Szabadka), 82,935; Debreczen, 88,753; Agram (Zágráb), 76,892; Presburg (Pozsony), 74,964; Hódmező-Vásárhely, 64,702.

EDUCATION. In Austria, of the total population in 1900, 16,067,972 could read and write, 778,782 could read but not write, and 9,303,954 could neither read nor write. Elementary instruction is free and compulsory. At the end of 1906 there were in Austria 21,166 elementary schools, with 96,300 teachers and 4,067,243 pupils. Children of school age numbered 4,447,413. There were 119 training colleges for teachers. In 8194 of the elementary schools, the language used was German; in 5496, Czech; in 6448, other Slav languages. In 1909 the number of gymnasias was 267 (including 12 for girls), with 91,627 pupils; of realschulen, 141, with 46,374 pupils. The eight universities maintained by the state had in 1907 about 21,000 students; the eight technical "high schools" in 1908, nearly 10,500 students. In addition to those mentioned, there are many institutions for special study, as schools of theology, music, commerce, agriculture, forestry, etc.

In Hungary, of the total population in 1900, 9,483,930 could read and write, 507,034 could read but not write, and 9,131,376 could neither read nor write. As in Austria, elementary instruction is free and compulsory. In 1907 there were in Hungary 19,167 primary schools, with 42,967 teachers and 2,764,821 pupils. Children of school age numbered 3,573,475. There were 95 training colleges for teachers, with 1110 instructors and 11,331 students. Gymnasias in 1907 numbered 182, with 3487 teachers and 58,881 pupils; realschulen, 42, with 922 teachers and 12,588 pupils. The three universities maintained by the state had about 9700 students. The technical "high school" (polytechnicum) at Budapest had about 1300 students. There are many commercial, industrial, agricultural, and other institutions for professional or technical study.

INDUSTRIES. Agriculture is the leading industry in both Austria and Hungary. Manufacturing industries have gained much more importance in the former than in the latter; also in mining the Austrian is far in the lead of the Hungarian part of the monarchy. The cultivated area in Austria, in 1906, is reported as follows, in hectares: Arable land, 10,637,451; pastures and meadows, 7,114,566; gardens, 368,742; vineyards, 248,933. The area planted to the principal crops, in 1907, and their production, were as follows: Oats, 1,935,710 hectares, 52,232,000 hectolitres; rye, 1,853,577 and 30,825,000; wheat, 1,179,455 and 18,520,000; barley, 1,166,526 and 26,184,000; wine, 237,807 hectares and 4,250,000 hectolitres; potatoes, 1,258,545 hectares and 146,634,000 quintals (of 220.46 pounds); sugar beets, 232,574 hectares and 63,939,000 quintals.

In Hungary, in 1907, the areas planted to the principal crops, and their production, were: Wheat, 3,552,000 hectares and 35,565,000 quintals (of 220.46 pounds); corn, 2,841,000 and 44,084,000; oats, 1,174,000 and 12,143,000; bar-

ley, 1,168,000 and 14,183,000; rye, 1,065,000 and 10,562,000; potatoes, 644,000 and 55,463,000.

The production of beet sugar, especially in Bohemia, is an important industry. The sugar production of the monarchy in 1907-8 amounted to 1,411,600 tons, and in 1908-9 1,386,900 tons, the share of Bohemia being 685,300 tons and 676,600 tons in the two years, respectively. For the agricultural years 1909-10, the estimated sugar output was 560,000 tons in Bohemia and 1,260,000 tons in the monarchy.

The mineral products of Austria-Hungary include iron, lead, zinc, silver, mercury, copper, gold, coal, lignite, salt, and petroleum. The most important metal is iron, the production in Austria of the ore, in 1907, being valued at 21,911,283 kronen, and of the raw metal, 109,695,842 kronen; in Hungary the ore was valued at 11,439,000 kronen, and pig iron, 36,329,000 kronen. The total values of mining and furnace products (exclusive of salt, petroleum, etc.), in Austria, in 1906, were 260,374,095 kronen and 117,952,247 kronen, respectively; in 1907, 294,238,741 kronen and 132,807,655 kronen, respectively. Besides the iron mentioned above, the principal mineral products of Austria, in 1907, were valued as follows: Coal, 129,493,000 kronen; lignite, 125,528,000; lead, 6,993,000; zinc, 6,178,000; silver, 4,131,000; mercury, 2,487,000;—of Hungary: Lignite, 51,887,000 kronen; coal, 14,721,000; gold, 11,479,000; silver, 1,266,000.

The leading manufactures include cotton textiles, tobacco, iron, and steel goods, sugar, beer, alcohol, and spirits, woodenwares, paper, earthenwares, and glass, and leather products. In Austria, in 1909, the number of cotton spindles in operation was 4,412,077 (4,026,460 in 1908), of which about 2,680,000 were in Bohemia. In 1908 cotton spindles in Hungary numbered 171,460. The tobacco industry is a government monopoly; in 1906 there were 30 tobacco factories in Austria and 21 in Hungary. Breweries in 1906 numbered 1271 in Austria, with a production of 20,450,297 hectolitres of beer; in Hungary, in 1907, 89 breweries, with an output of 1,882,385 hectolitres. In 1906 Austria had 39,227 distilleries, producing 1,626,260 hectolitres of alcohol; Hungary, in 1907, 59,547 distilleries, producing 1,127,288 hectolitres. In 1907 Austria-Hungary had 171 paper factories, 288 wood-pulp factories, 43 cellulose factories, and three straw-stuff factories, with a total output of 3,711,630 metric centimes of machine and vat paper. The monarchy ranks fifth in the world's paper production.

COMMERCE. Under an agreement renewable under the Constitution every ten years, Austria and Hungary form a single customs territory. No agreement was reached in 1897, but the commercial union was provisorily maintained until 1907, when a new agreement was made. The special trade of the monarchy (imports for consumption and exports of domestic produce) are reported as follows, in thousands of kronen:

	1906	1907	1908
Imports	2,341,205	2,501,974	2,532,426
Exports	2,380,087	2,457,286	2,324,955

The foregoing figures do not include the imports and exports of precious metals, which amounted to 42,846,000 kronen and 53,121,000 kronen, respectively, in 1906; 43,786,000 and

78,866,000, respectively, in 1907. The figures for 1908 are provisional. The leading imports in 1907 were valued as follows, in crowns: Cotton, 301,700,000; coal, 182,900,000; wool, 145,300,000; common metals, exclusive of iron, 117,400,000; machinery and appliances, 95,700,000; hides, 78,100,000; iron and iron manufactures, 67,400,000; silk, 62,100,000; woolen textiles, 56,000,000; cottonades, 55,300,000; cottons, 53,700,000; leather, 53,700,000; silk manufactures, 51,800,000; coffee, 51,000,000.

The principal exports in 1907 were valued as follows, in crowns: Woods, 280,400,000; sugar, 198,670,000; cottonades, 154,200,000; eggs, 123,235,000; iron and iron manufactures, 98,500,000; lignite, 85,902,000; woolen manufactures, 75,751,000; glass and glassware, 72,810,000; paper and paper manufactures, 69,400,000; cereals (chiefly barley), 61,500,000; malt, 57,965,000; leather goods, 54,500,000; woodenware, 54,000,000; hides, 50,800,000; cattle, 46,853,000; coal (excluding lignite), 30,406,000; wool, 28,300,000; silk, 27,300,000; fowl, 24,620,000; feathers, 24,500,000; hops, 23,735,000; horses, 22,553,000; beer (in casks), 14,848,000; beans, 14,322,000. Provisional figures for the larger classes of exports in 1908 are: Manufactured articles, 1,028,533,000 kronen; raw material, 881,689,000; foodstuffs, 624,787,000; semi-manufactures, 414,043,000; sugar, 227,697,000; cereals, etc., 133,367,000; eggs, 116,179,000.

Imports from and exports to the countries commercially most important were valued in 1906 and 1907 in thousands of kronen:

Countries	1906		1907	
	Imports	Exports	Imports	Exports
Germany	905,514	1,132,596	979,535	1,176,801
United States.....	215,381	59,310	258,877	67,204
Great Britain.....	189,308	251,325	258,529	222,247
Brit. East Indies..	164,069	72,585	185,426	50,823
Russia.....	151,518	69,402	137,778	78,213
Italy.....	116,428	178,453	122,560	193,393
France.....	79,128	76,636	85,015	73,456
Switzerland.....	74,577	83,806	78,151	94,016
Brazil.....	59,669	7,737	52,978	7,323
Belgium.....	46,633	23,956	45,974	26,425
Egypt.....	32,225	43,574	36,047	50,876
Rumania.....	35,345	101,042	34,452	110,062

COMMUNICATIONS. The total length of railways in the monarchy at the beginning of 1908 is reported at 27,061 miles, of which 13,497 were in Austria and 13,564 in Hungary. Of the Austrian lines about seven-tenths, and of the Hungarian, about four-fifths, are owned or operated by the state. There is a large amount of steamboat traffic on the rivers and canals. For the navigation of vessels and rafts, Austria has about 4200 miles of river and canal, 830 miles being navigable for steamers; Hungary's navigable rivers and canals aggregate about 3200 miles, of which 2450 miles are navigable for steamers. The Danube forms the most important waterway. In 1907 there entered at the ports of the monarchy 158,386 vessels, of 20,875,703 tons; and cleared 158,275 vessels, of 20,870,888 tons. Of the entrances, 137,728 vessels, of 20,112,072 tons, were steamers; of the clearances, 137,688 vessels, of 20,114,043 tons. The total number of entrances under the Austro-Hungarian register was 128,005 vessels, of 16,795,731 tons; clearances, 127,700 vessels, of 16,704,289 tons. The merchant marine at the beginning of 1908 included 420 steamers, of 443,684 tons, and 14,574 sailing vessels, of 49,-

395 tons. In 1907 the post-offices numbered: Austria, 9143; Hungary, 5459; foreign, 42. In 1907 Austria had 6510 telegraph offices, with 27,011 miles of line and 135,375 miles of wire; Hungary, 4040 offices, with 15,310 miles of line and 84,942 miles of wire. Telephone stations, 1907, in Austria were reported to number 69,600, with 216,960 miles of wire; in Hungary, 39,726, with 154,113 miles of wire; the Austrian telephone stations are reported to have increased to 108,457, in 1908, and 124,825 in 1909.

FINANCE. The cost of administering the common affairs of the monarchy is borne by both governments in a proportion agreed on by their Parliaments and sanctioned by the sovereign. During the ten-year period 1898-1907 the Parliaments failed of agreement, and the sovereign fixed the proportion at that hitherto prevailing. In 1907 the agreement was renewed for ten years. According to this agreement, the next proceeds of the common customs shall be applied to the common expenditure and the remaining expenditure shall be borne in the proportion of 63.6 per cent. for Austria and 36.4 per cent. for Hungary. According to the preceding agreement, these percentages were 65.6 and 34.4 respectively. The monetary standard is gold, and the unit of value, the krone (crown), worth 20.3 cents. According to the sanctionial estimates, revenue and net expenditure have balance, as follows: 1907, 424,740,000 kronen; 1908, 409,711,000 kronen; 1909, 406,840,098 kronen. The revenue represented by the latter figure included customs amounting to 151,338,529 kronen and the matricular contributions amounting to 255,501,569 kronen. In addition, estimated matricular contributions for extraordinary expenditure on the army amounted to 23,047,000 kronen, and estimated receipts from the administration departments to 11,375,184 kronen, distributed as follows: War, 10,130,782 kronen; Foreign Affairs, 723,000; Marine, 381,240; Finance, 138,107; Board of Control, 2055. The estimated aggregate of ordinary revenues, accordingly, was 418,215,282 kronen, and of all revenues, 441,262,282 kronen. The expenditures (ordinary and extraordinary) were distributed as follows: War, 358,022,927 kronen; Marine, 63,819,100; Foreign Affairs, 14,389,584; Finance, 4,693,025 (including 2,640,000 kronen for military pensions); Board of Control, 337,646; total, 441,262,282. No loans are contracted jointly by Austria and Hungary. When the union of the two states was effected in 1867, existing obligations were assumed in common; this debt, on January 1, 1909, amounted to 5,240,025,151 kronen. Of this amount the sum of 5,213,601,172 kronen was interest-bearing, and 5,211,790,273 kronen represented the consolidated debt.

The revenue and expenditure of Austria in 1906 amounted to 2,008,494,779 kronen and 1,862,292,393 kronen respectively; in 1907, 2,253,052,144 and 2,209,092,911 respectively. For 1909 the estimated revenue was 2,404,647,482 kronen, and the estimated expenditure, 1,396,843,236 kronen. The larger items of estimated revenue were: Railways, 566,443,100 kronen; excise, 367,518,000; direct taxes, 334,821,000 (including 172,510,000 personal, and 158,780,000 land, taxes); tobacco monopoly, 251,207,800; posts and telegraphs, 163,792,000; customs, 144,375,000; court fees, 114,597,200; stamps, 58,115,500; salt monopoly, 47,887,200; lottery,

30,540,150. The principal estimated expenditures (ordinary and extraordinary), for 1909 were: Railways, 550,384,570 kronen; public debt, 411,251,520; contribution to the common expense of the monarchy, 310,176,990; posts and telegraphs, 155,530,470; worship and public instruction, 104,618,185; public works, 89,460,754; justice, 92,548,190; civil pensions, 91,627,027; national defense, 87,304,574. On January 1, 1909, the consolidated debt amounted to 4,673,490,260 kronen, of which all but 60,000,000 kronen was interest-bearing; the floating debt, entirely interest-bearing, 60,488,840 kronen; total debt, 4,733,979,100 kronen.

The revenue and expenditure of Hungary in 1906 amounted to 1,357,180,000 kronen and 1,245,469,000 kronen respectively; in 1907, 1,399,474,000 and 1,395,711,000 respectively. For 1903 the estimated revenue was 1,397,010,414 kronen, and the estimated expenditure 1,396,988,349 kronen; for 1909, 1,555,777,976 and 1,555,729,907 respectively. The larger items of estimated revenue were, for 1909: Railways, 327,470,000 kronen; excise, 246,835,000; direct taxes, 240,822,000 (including land tax, 67,830,000; industrial tax, 47,000,000; income tax, 34,529,000; transportation dues, 30,976,000; buildings tax, 30,000,000); tobacco monopoly, 144,152,000; state domains and establishments, 132,590,234; posts and telegraphs, 75,185,000; court fees, 70,323,000; stamps, 45,175,000; salt monopoly, 34,899,000. The principal estimated expenditures for 1909 were: Ministry of commerce, 339,167,240 kronen; ministry of finance, 228,047,567; Hungarian debt, 189,823,887; contribution to the common expense to the monarchy, 86,760,838; ministry of the interior, 81,006,487; worship and public instruction, 72,663,209; ministry of agriculture, 63,908,391; contribution to the common debt, 60,619,340; national defense, 48,548,723; justice, 48,395,962. On January 1, 1909, the consolidated debt stood at 5,211,790,273 kronen, of which all but 26,185,080 kronen was interest-bearing; the floating debt amounted to 984,513 kronen, of which 746,214 was interest-bearing; the total debt was 5,240,025,151 kronen, of which 5,213,601,172 was interest-bearing.

ARMY. The active army of Austria-Hungary has a single organization despite the dual nature of the monarchy, founded in the main on the German model. This "Common Army" in 1909 consisted of 17 army corps, an additional corps being formed on November 1, 1909. The troops stationed in the former military districts of Sarajevo and Zara were formed into the 16th and 17th corps with headquarters at the cities mentioned, the former being in charge of a military governor, Gen. Varesanin von Vares, whose jurisdiction includes the annexed provinces. These 17 corps comprise five cavalry divisions, of which 15 regiments are dragoon, 11 Uhlans, and 16 Hussars, and 34 divisions of infantry, in which are included 468 battalions formed by 106 regiments of the line, four of Tyrolese rifles, and 26 of regular rifles. By a recently completed reorganization of the artillery each army corps is provided with 130 field guns and 24 howitzers, while 24 guns are maintained for the Landwehr division attached to each corps. The heavy artillery includes five siege howitzer divisions, each with four 4-gun batteries on a war footing. There were also 12 mountain batteries and six regiments of fortress artillery. New field guns were issued to

the army during the five years, 1904-9, at an expense of over \$30,000,000.

In addition to the active forces which, maintained on a peace footing of about 319,500 men, could readily be mobilized and organized on a war basis with a strength of about 900,000, there is the Landwehr and Landsturm by which more than a million men could be made available, a number that probably could be trebled by using all classes of these forces. The Landwehr and Landsturm were organized separately in the two kingdoms, being known in Hungary as the Honvédség and Népőfölkelés respectively, and in time of peace entirely under Hungarian jurisdiction. Military service is compulsory and universal to all citizens between 19 and 42 years of age in both countries. Continuous service in the common army lasts for three years, then seven years in the reserve, two years in the Landwehr reserve, after which the soldier goes to the Landsturm until the end of his liability for military service. The military budget for the year 1909 was as follows: Common army, Kr. 334,975,927; Austrian Landwehr, Kr. 51,751,802; Hungarian Honvéd, Kr. 54,387,563; military expenditure charged to Bosnia-Herzegovina, Kr. 5,947,200; the grand total amounting to about \$95,000,000. In 1908 the common army amounted to 22,139 officers, 283,521 men, and 60,197 horses, with in addition 941 officers, 10,046 men, and 1871 horses in Bosnia and Herzegovina. The Austrian Landwehr totalled 3688 officers, 37,273 men and 4501 horses and the Hungarian Honvéd 2680 officers, 25,914 men and 4702 horses. In 1909 there were estimated in effective service 16,842 officers, 4919 officials, 977 employees, 18,162 cadets and reëngaged non-commissioned officers, and 271,432 non-commissioned officers and men.

NAVY. In 1909 the effective navy consisted of three first-class battleships, of 10,000 tons each; three armored cruisers, aggregating 19,020 tons; 6 coast-defense vessels, 41,700 tons; three cruisers (3000 to 6000 tons each), 11,500 tons; three cruisers (1000 to 3000 tons each), 7050 tons; 12 torpedo boat destroyers, 4800 tons; 51 torpedo boats, 7467 tons; seven submarines, 2000 tons. In 1909 three first-class battleships, of 14,500 tons each, were under construction, (one had been launched September 30, 1908, another on July 3, 1909, and the third was to be launched in February, 1910), and four first-class battleships, of 20,000 tons each, were projected. The Austro-Hungarian navy, which is maintained in a state of high efficiency, is mainly for coast defense. Two submarines were added in 1909. The personnel in 1908 numbered about 14,500 officers and men.

GOVERNMENT. The common head of the monarchy in 1909 was Franz Josef I., who was born August 18, 1830, and became Emperor of Austria December 2, 1848, and King of Hungary, June 8, 1867. His nephew, Franz Ferdinand, born in 1863, is the heir presumptive. The Emperor-King directs the common administration, under the constitutional compromise of 1867, being assisted by a ministry of three members, for foreign affairs, finance, and war, who are responsible to a common legislature called the Delegations, which convenes each year alternately at Vienna and at Budapest. The common government deals with finance relating to the monarchy as a whole, the army and navy, foreign affairs, the diplomatic, postal, and telegraphic services, and certain state monopolies.

The ministers at the end of 1909 were: Premier and Minister of Foreign Affairs, Count Alois Lexa von Aehrenthal (appointed 1906); Finance, Baron Stephan Burian von Rajecz (appointed 1903); War, General Baron Franz von Schönauich (appointed 1906). The Premier of Austria was Baron R. von Bienenrth; of Hungary, Alexander Wekerle. Austria and Hungary have each a representative parliament of two houses and a responsible ministry appointed by the sovereign of the monarchy. Croatia and Slavonia and, in Austria, each province have separate diets.

HISTORY

THE FORWARD POLICY. The events of 1909 proved for the time being, at least, the complete success of Baron von Aehrenthal's energetic and aggressive policy. The disasters which were predicted after the annexation of Bosnia and Herzegovina in October, 1908, did not occur. A peaceful adjustment was reached with Turkey, and although for some months a war with Serbia seemed imminent, the danger passed with Russia's sudden recognition, at the instance of Germany, of the annexation as an accomplished fact, leaving Serbia no hope of support from any European Power. For an account of these events, see the article **BALKAN QUESTION**. In Austria-Hungary opinion had from the first been sharply divided. The optimists refused to admit that any catastrophe was likely to follow the assertion of sovereignty over the two provinces which Austria-Hungary had governed for thirty years and whose annexation was a logical consequence. Their confidence was shaken for a time when the gathering of troops on the Serbian and Montenegrin frontiers proved the seriousness of the Serbian crisis. At this critical period the enemies of von Aehrenthal's diplomacy were loud in their censure. The Pan-slavists blamed him for preventing their kinsmen of Serbia and Montenegro from taking advantage of unsettled conditions in Turkey to add to their power. The Czechs, Slovaks and Slovenians were heartily in sympathy with Serbia and Montenegro and encouraged them to resist the monarchy. The outcome, proving as it did the vitality of the Triple Alliance, humiliated the Slavic element who had repeatedly declared the Alliance of no account, and correspondingly gratified the Germans. The cost of the annexation venture was heavy, but on the whole there was comparatively little grumbling on that account, so great was the relief at emerging from the situation without bloodshed. In the latter part of the year there was a sharp controversy between writers on diplomatic affairs as to the real responsibility for the annexation policy. It was said that the Russian Foreign Minister, M. Isvolsky, had agreed to annexation in advance. He was said to have definitely committed himself to it at the meeting with von Aehrenthal at Buchlau in September, 1908, and circumstantial but conflicting accounts, purporting to be authentic, were published of this and other interviews. Charges of bad faith were made by the friends of both Ministers.

BOSNIA AND HERZEGOVINA. The organization of the annexed territory was provided for in the Annexation Bill which was explained by the Austrian Premier to the parliamentary committee to which it was referred early in February. It was expected that the new Diet would meet in the spring. The principle of election

was to be universal direct suffrage, but with three categories of electors: First, the larger tax payers, persons holding academic diplomas, and all members of Chambers of Commerce; second, urban voters; third, country voters. In all three classes seats were to be distributed according to the numerical strength of creeds, each creed voting separately. The Crown was to appoint the President of the Diet from among the members of each creed in succession. The Diet, which was to consist of 72 members, was to deal only with the affairs of Bosnia and Herzegovina, but these included the control of the budget and all matters of administration. District councils were also to be created. In general the status conferred upon the two provinces was that of restricted autonomy under the hereditary succession of the House of Hapsburg. The laws of December 20, 1879, and February 22, 1880, under which the provinces were administered after the Treaty of Berlin bestowed them on Austria-Hungary, were to remain in force. By these they became the joint possession of the Dual Monarchy, having economic unity and a common customs tariff with the other provinces, and any change in the constitution or in the relations of the annexed provinces with the Dual Monarchy requires the consent of both the Austrian and Hungarian Parliaments. Hungary attempted, after the annexation, to revive certain historical rights over the two provinces, which, she declared, had never been interrupted since the time of the Ottoman invasion, but Austria would not admit them, and the constitution wrought out by the common government maintained the principle of a joint sovereignty. During the period of occupation Bosnia-Herzegovina were under a strictly absolute régime and now that a constitution was abolished, the political grouping that would result became an important question. The inhabitants being Slavs added greatly to the already superior numbers of the Slav element in the empire. Hitherto the differences in the provinces had been religious, not political or racial—involving questions of leadership among the three confessions: Moslems, Greek Orthodox and Catholics. Delegates from each of these bodies, and from the Spaniards or Jews of Spanish descent, were assembled by the government to express their views as to the composition of the Diet and accepted in principle the plan outlined above. As to individual liberty, the constitution guaranteed personal liberty, liberty of property, inviolability of private correspondence, freedom of worship and of conscience, and regulated liberty of residence, right of public meeting and association, the freedom of the press and the right of petition. The government was severely blamed for the action of Baron de Burian, joint Minister of Finance, and Governor of Bosnia-Herzegovina in granting to a Hungarian bank the exclusive right to aid the tenantry of the feudal landowners in the purchase of lands to cultivate, that is, to arrange for the indemnification of the landowners and for annual payments from the tenants. It was charged that the system arranged by the banks was usurious and that the concession was an infringement on the rights of the future Diet of the provinces and on the Austrian right of control. The von Bienerth Ministry narrowly escaped a vote of no confidence in the Reichsrath on account of its negligence in the matter. The plan was afterwards modified.

AUSTRIAN PARLIAMENT. The lower house of the Reichsrath met January 20, but remained in session only about two weeks. Important bills were introduced by the Premier, Baron von Bienerth, on February 3, prescribing the official language to be employed by the authorities in Bohemia, and providing for the reform of the political administration of Bohemia by a division into German, Czech and mixed districts. The Bienerth Ministry had been formed as a compromise and was a Ministry of functionaries, not a parliamentary Ministry representing a majority. It was hoped that a working majority might be found. These language measures, however, revealed a sharp division on national lines, the Germans forming a powerful *bloc* in support of the government against the Czechs and southern Slavs who, on the other hand, were united in the "Slav Union." A working parliamentary majority could not be had in the circumstances. The Czechs were able to put a stop to all parliamentary business. The obstructive tactics of the Czechs led to great disorder in the Chamber. The Premier declared the session closed on February 5. A scuffle ensued between Czech and German deputies in the course of which one member's hand was bitten and another's coat torn off. The members dispersed singing their racial anthems at one another. The Bohemian administration had fallen into a state of great confusion on account of the language difficulty. In certain localities the functionaries were divided into rival camps according to their nationality. The rule that each nationality should be represented in the civil service in proportion to its numbers threw the whole administrative system into disorder. This question of language in the provinces could not be solved by compromise where the minority was strong enough to obstruct the majority, but only where the minority was so feeble that it had to yield completely, as for example in Dalmatia where the Bienerth Ministry brought about a settlement between the Croats and the Italians. The latter, who were only about 5 per cent. of the population, submitted to the establishment of the language of the Croat majority as the official medium, except in some urban districts where Italian was retained. Hitherto Italian as the official language of the Venetian Republics had kept its ascendancy ever since the province had been ceded by Napoleon I.

Baron von Bienerth reconstructed the Austrian Cabinet, replacing the provincial managers of the chief departments by men associated with Parliament. A new session was soon called. Early in the summer session two important commercial measures were introduced. The first authorized the formation of commercial treaties with Serbia, Bulgaria, Greece and Montenegro, provided it could be agreed that the importation of live cattle from those countries into Austria-Hungary should be prohibited. This was opposed by the Agrarians and for the time being prevented. The other bill established a central market for the exportation of cattle and cattle products. It was provided that Austria's entire share of the customs revenue on cattle, namely 63 per cent., should be paid out in premiums on exportation. This was characterized as an Agrarian measure and unjust to the industrial communities on which the taxes to make good this deficit would fall. The Finance Minister made his Budget statement in the latter part of October, an-

nouncing a deficit of about \$8,700,000, after the proposed taxes had gone into effect. Among the new revenue measures were a succession duty, tax on mineral waters, tax on bachelors, progressive tax on the dividends of joint stock companies exceeding 10 per cent., and increase of the income tax. Upon the decision of the Austrian Cabinet on October 30, to advise the Emperor to sanction bills passed by the Diets of Salzburg, Upper and Lower Austria, and Vorarlberg making German the sole language of these provinces, the two Czech members of the Ministry resigned.

FISCAL REFORM. Owing to the heavy drain on the public revenues resulting from the annexation, the government faced a serious deficit, and even before the new Reichsrath met, the Minister of Finance, von Bilinski, whose calculations had been upset by the preparations for war with Serbia, issued treasury bonds to the amount of 220,000,000 crowns. On the meeting of the Reichsrath a vote of lack of confidence was passed against him for exceeding his powers, but Parliament recognizing the seriousness of the situation as an excuse, ratified the measure. Apart from these extraordinary expenditures, the cost of administration was steadily increasing. Financial necessities tended to increase more rapidly in Austria-Hungary than in other countries owing to the national rivalries which tended greatly to increase the number of officials and the cost of schools. A cumbersome and costly administrative service resulted from the need of appointing functionaries for each nationality in proportion to its numerical importance throughout all grades of the service. Expenditures for education mounted rapidly, owing to the fear of one nationality that it might fall behind another. New revenues were necessary and the Finance Minister was obliged to devise a measure of fiscal reform. Hitherto the provinces had raised their revenues from an additional levy on the objects of the state's direct taxation. The communes did the same. These additions to the state's taxes amounted in some cases to nearly half of the amount raised by the state, and in some it even exceeded that proportion. They did not suffice, however, and the state had been obliged to turn over to the provinces a part of the taxes previously imposed by itself. In spite of these concessions the provincial budgets continued to show a deficit. Thus the new fiscal measure had to provide for these provincial necessities, as well as meet the heavy Imperial demands. The latter arose not only from the cost of annexation, war preparations, etc., but from the comprehensive measure of invalid and old age pensions, which applied not only to the organized industries, but to all the small manufactures and small cultivators. As to the provinces, the Finance Minister's project abandoned definitely the principle of provincial participation in Imperial receipts, and offered instead a fixed sum, amounting the first year to 105,000,000 crowns, and thereafter increasing by 2,000,000 crowns yearly, a convention on this basis to be made with the provinces and to continue in force till 1918. As to the Imperial revenues, it proposed increased duties on alcohol and beer; increase of the income tax and succession duties and higher passenger and freight rates on the railways. The Reichsrath in general feared to impose these new and heavy burdens. The socialists refused to consider any increase of the indirect taxes, proposing instead increased

taxes on acquired wealth, personal property, stock exchange operations, dividends, etc. The opposition saw an opportunity for obstruction, with a view to extorting concessions. No progress could be made with the project during the summer session and it was evident in view of the government's feeble majority that it would have to be radically changed.

A prospect for the suppression of the obstructive tactics in the Reichsrath, which had been so conspicuous a feature in its sessions for a number of years, was afforded in September by the action of the Poles, Social Democrats, Christian Socialists, and most of the Slavs, who united in adopting an urgency measure, which was brought in by the leader of the Young Czech party. This empowered the President to put an end to technical obstruction in Parliament. Preparations were made for introducing a bill which would effect this purpose.

AGRAM TREASON TRIAL. One of the elements of danger in the difficulty with Serbia (see BALKAN QUESTION) was the sympathy of the Slav subjects of the empire with the Servians. There were signs of a pro-Slav movement in Croatia, and fifty-three persons were arrested on the charge of high treason in having taken part in a design for the separation of the provinces of Croatia, Slavonia and Bosnia from the empire to form part of a "Greater Serbia." It was reported that a man who had made bombs which were to be used against Prince Nicholas of Montenegro, had confessed and accused the defendants of taking part in this pro-Serb conspiracy. There was much hostile comment on the government's conduct of this case, the evidence being considered trivial and unlikely to establish such serious charges. The affair also increased popular ill-feeling in Serbia against the Austrian authorities. Nevertheless the trial proceeded and the sentences were rendered on October 5. Thirty-one were condemned to terms of penal servitude for the most part short, but in two cases twelve years each; and twenty-two were acquitted. The condemned were also required to pay the costs, which amounted to nearly \$15,000. The results fell far short of those demanded by the prosecution, which had asked for five death sentences and twenty years of penal servitude.

THE FRIEDJUNG CASE. For two or three years past the press had made frequent allusions to an alleged movement in the southern Slavic Provinces against Imperial unity. There was evidence, it was said, of a pan-Serb conspiracy for the formation of a united south Slavic Province, and its detachment from the empire. The movement was thought to extend throughout Dalmatia, Croatia, Slavonia, and Bosnia-Herzegovina and the annexation of the last-named provinces led to increased efforts on the part of the supporters of von Aehrenthal's policy to suppress the alleged conspiracy. In December, 1908, the *Reichspost* printed specific charges against certain parties and individuals in these southern Slavic Provinces, and these denunciations were repeated by Dr. Friedjung in the *Neue Freie Presse* on March 25, 1909, who supported them by documents from official sources. As a result of this, libel suits were brought by the incriminated persons against the *Reichspost* and Dr. Friedjung. The trial of the latter concluded in December with a complete vindication of the alleged conspirators. Dr. Friedjung, who is well known as a historian and was sup-

posed to have taken due care in testing the accuracy of the documents, admitted that two of them were forgeries and declared that he did not wish to base his charges on any of the others. Thus the conspiracy was, so far as any evidence could be adduced, found to be purely mythical. This ending of the affair was regarded as likely to prepare the way for better relations between the empire and its southern Slavic states.

HUNGARIAN CABINET CRISIS. The long standing issue between Austria and Hungary was discussed again more bitterly than ever. In Hungary the demand for a mere union in the person of the sovereign was renewed and preparations were made for economic independence even before the expiration of the term of compromise. The chief articles in the programme of the Independence party were: A customs barrier between the two countries, an independent Hungarian bank of emission, and the establishment of the Hungarian regiments as a national army. These aims if realized would sever the two parts of the empire, and were therefore opposed by all who desired the continuance of Austria-Hungary as a great Power. Count Andrássy's franchise reform measure, which had been introduced in November, 1908, was indefinitely postponed in January. The Hungarian Coalition Ministry, which had been in power since 1906, announced its resignation on April 26, 1909. The ostensible ground was the refusal of the government to render the two joint state banks independent though associated. The real grounds, however, were said to be the failure of the Ministry to make its promise of universal suffrage effective and the lack of moral support from the Chamber. The crisis was prolonged by the government's unwillingness to concede the demand as to the banks or to extend the use of the Magyar language in the Hungarian regiments of the joint army. The government also desired an increase of the annual recruiting on the basis of a two-years service and demanded the revenues necessary for this purpose as well as for the measure necessitated by the annexation. It was difficult to find a Hungarian Ministry that would take office on these terms. M. Francis Kossuth and Count Julius Andrássy saw the Emperor on June 8, but no Cabinet was formed and the crisis continued. In July unsuccessful negotiations were made for a Ministry from the Independence party. Later in the month, however, the crisis was deferred by the reappointment of the Wekerle Cabinet, which had resigned. This was only a temporary expedient. The Ministry resigned again in the latter part of September, finding that the members of the coalition could not agree. It was thought that an Independence Ministry under Kossuth would ultimately succeed, but at a meeting of that party on November 11, he lacked 46 votes of a majority, and threatened to withdraw if his colleagues insisted in their extreme demands, namely for a separate Hungarian State Bank and the formation of a Cabinet from the majority. The Crown was disinclined to make any "national" concessions. M. Kossuth declared that if none could be obtained he would go over to the Opposition. It was thought that the question which divided the Independence party could be decided only at a general election, which was expected in January. The crisis was still unbroken at the end of the year.

OTHER EVENTS. When the danger of war with Serbia was over, there was a great demonstration of gratitude and of loyalty to the Emperor, a large crowd assembling in the courtyard of the Castle (April 18). In July there were popular demonstrations at Prague and other Bohemian cities against the Agrarian opposition in Parliament to the ratification of the treaties with Serbia and Rumania which permitted the importation of meat and grain into Austria-Hungary. The Socialists were active in organizing meetings to express the popular discontent at the high price of food. The centenary of the battle of Aspern was celebrated in May and was attended by the Emperor. The Emperor's 79th birthday was celebrated on August 18. On August 28 the Hofer Centenary of the War of Independence of 1809 was celebrated at Innsbruck, where the Emperor, who was received with great popular enthusiasm, laid a wreath at the foot of the Andreas Hofer monument. During the first week in September the sixteenth International Medical Congress held its session at Budapest. The number of members enrolled was 4300. During the year there were signs of a change of opinion in certain quarters as to the part that Austria had taken in the Balkan crisis. There was a tendency to blame von Aehrenthal less and M. Isvolsky more, and to place a greater degree of responsibility on the statecraft of Ferdinand of Bulgaria. (See BALKAN QUESTION.) No accurate accounts of the cost of annexation to Austria and the expense involved in the trouble with Serbia were issued, but a leading Austrian newspaper estimated it at nearly \$68,000,000.

AUTOMOBILES. The manufacture of automobiles in 1909 was greatly in excess of the output of any previous year in the history of the industry. The Association of Licensed Automobile Manufacturers estimates that nearly 115,000 automobiles of all kinds were manufactured in the United States in 1909. At an average price of \$2000 the value of this output would be about \$230,000,000. The development of this industry is perhaps without parallel in industrial history. The output of cars in 1903 was about 11,000, and the output in 1906 a little over 30,000. The increase in seven years has been, therefore, about ten-fold. A conservative estimate put the probable output in 1910 at 150,000 machines, while other estimates run as high as 200,000. The spread of the automobile was notable during 1909 in the Pacific Coast States and in the Central Western States.

Of the output in 1909 about 90 per cent. were gasoline pleasure cars, while the remainder were cars propelled by steam or electricity. The chief tendency during the year was shown in the production of low-powered, medium-priced machines. In large cities the cars that sold for about \$3000 found their best markets, but in country districts the demand was for smaller machines running down in price from \$3000 to as low as \$500. As a result of this demand for cheaper cars many of the manufacturers who had hitherto built only large cars began the production of the smaller type.

Two important features in automobile construction characterized the year. Both indicated a tendency toward standardization in the building of cars. These were the practically universal adoption of the magneto as a means of ignition, and the general use of the shaft drive in preference to the chain. The latter improvement had

indeed been adopted in 1908, but this was used even more generally in 1909. In earlier years the magneto was used on the more expensive engines and the battery on those of cheaper manufacture. In 1909 the magneto was used even on the cheapest cars either alone or in connection with the storage or dry battery, one system acting as a reverse in case the other gave out. During the year the four-cylinder motor held its place as the accepted type of road engine. While it was agreed that the six-cylinder gave a smoother running car and greater ability for hill climbing it was also proved that the extra cylinders added to complications in running and added expense of manufacture.

The year was notable for the remarkable spread of the taxicab in large cities. The number in New York practically doubled during the year. It was estimated at the close of 1909 that 1500 were in use. Taxicabs also had been introduced in the smaller centres of population. The introduction of larger commercial vehicles used for heavy trucking has gone forward, although the number of those in use has not been as great as their utility and economy of operation would seem to warrant. Heavy trucks are, however, being used by express companies, department stores and other industries which require heavier forms of trucking.

An important decision was rendered during the year by Judge Hough in the United States District Court of New York on the famous Selden patent cases, which have been in litigation for some years. Judge Hough sustained the patent, holding it valid, and infringed by those who illegally used it. This patent was filed by George B. Selden in Rochester, N. Y., in 1879, as application for a patent on a road locomotive of a design substantially the same as that of the present day gasoline automobile. The patent lay in the patent office for more than sixteen years, or until 1895, during which period various American and European constructors had developed and were marketing actual cars, apparently without any knowledge of the Selden patents, but along lines generally agreeing with the description of his claim. Selden instituted suit for infringement against various firms and individuals, building, selling or using the machines alleged to infringe. A number of the original manufacturing firms had conceded the validity of the patent and had formed an organization known as the Association of Licensed Automobile Manufacturers. These firms coöperated with Selden in an effort to establish the validity of the patent. The Selden patent expires in 1912, when any firm will be at liberty to build gasoline automobiles without regard to patent rights.

Automobile fire engines were used somewhat more extensively in 1909 than in 1908, although motor apparatus is still most widely used in suburbs and small cities, in communities where high speed renders it possible to cover a much greater territory by a single company. In hose carts, trucks, and hook and ladder trucks, there was considerable development in 1909.

In 1909 there were imported 1645 cars valued at \$3,071,000 as compared with 1347 cars valued at \$2,558,819 in 1908. There were exported in 1909, 3686 cars valued at \$6,899,031 as compared with 2164 cars valued at \$4,346,293 in 1908. These figures show material increase in the unit value of the cars exported and a large reduction in the unit value of the imports. The average value of exported cars is now practi-

cally the same as the average value of the imported machines. Of the 1645 bought abroad in 1909, 928 came from France, 418 from Italy, 127 from Germany and 101 from England. The cars exported went to all parts of the world, Africa, East India and Australia, as well as Canada, Europe and South America. Exports to the United Kingdom were valued at \$2,000,000; to Canada, \$2,400,000; France, \$846,000; Mexico, \$494,000; South America, \$240,000; British Australasia, \$303,000 and to Africa, \$49,000.

RACING EVENTS. The most important racing event of the year 1909, was the contest for the Vanderbilt cup, which was held on October 30 over the Long Island course. Twenty-five cars competed, all being of the high-powered stock variety. The race was won by a six-cylinder Alco, driven by Grant, which covered the distance of 278 miles in 4 hours, 25 minutes and 42 seconds. The average speed attained was nearly 63 miles per hour. There was no race for the Grand Prix which, under international rules, had been introduced at Savannah in 1908. The abandonment of road racing in Europe was primarily responsible for the failure to conduct another international meet. Aside from the contest for the Vanderbilt cup the most important racing event were those held at Lowell, Mass., Philadelphia, Pa., Santa Monica and Oakland, Cal., and Riverhead, L. I. The highest speed over a considerable distance was made at Riverhead, where a course of 200 miles was covered at the average rate of over 70 miles an hour. The year was especially noted for the popularity which track racing attained. Three twenty-four-hour races were held at Brighton Beach, N. Y., in one of which a new world's record of 1196 miles was made by Mulford-Patschke in a Lozier. Indianapolis and Atlanta were other centres of track racing, special motordromes having been constructed for the purpose. The only contests held in the Indianapolis course resulted in the loss of five lives and put an effectual damper on the sport. Several endurance tours were held in the United States during 1909, but the Glidden tour turned out to be a failure owing to the few entries and bad roads. The route taken was from Detroit to Kansas City, through Denver, a distance of over 2500 miles. Other distance runs were from Washington to Boston and return, and from New York to Atlanta.

Several new speed records were made during the year. At Minneapolis, on September 11, De Palma drove a Fiat 1 mile in 50½ seconds; 10 miles, in 8 minutes, 49½ seconds, and 25 miles, in 22 minutes 59½ seconds. The record for 100 miles was eclipsed at New Orleans on February 21 by a Buick car driven by Burman, the time made for the distance being 1 hour, 42 minutes and 39½ seconds. Noteworthy motordrome records established were: Half-mile (flying start), 14.08 seconds, made at Brooklands, England, by Hemery in a Benz car; 1 mile, 37.7 seconds made at Atlanta, Ga., by Strang in a Fiat car; 10 miles, 7 minutes .01 seconds, made at Atlanta by Strang in a Fiat car; 15 miles, 12 minutes 32½ seconds, made at Indianapolis by Oldfield in a Benz car; 50 miles, 40 minutes 14.1 seconds, made at Atlanta by Strang in a Fiat car, and 100 miles, 1 hour 24 minutes 8 seconds, made at Atlanta by Chevolet in a Buick car.

AUTOSEROTHERAPY. This method of treating pleural effusions, first suggested by Gilbert of Geneva, was used in 168 cases by Marcon and Tchigaeff during 1909. Marcon makes an exploratory puncture in cases of pleural effusion; if the fluid is free from pus he reinjects from 1 to 5 c.c. of it directly again into the subcutaneous tissue through the same needle, which is not withdrawn, the direction of the point being merely altered to bring it into the desired spot. The injection is repeated at intervals of two or three days. Marcon believes the remarkable benefit is due to the stimulation consequent upon the formation of an antipleuritic substance or antibody by the injection of a product of the pleuritis. In most cases the effusion is rapidly reabsorbed, particularly those of recent formation. An advantage of the method is that there is less risk of formation of adhesions and of retractions than when thoracentesis is done. See also SERUM THERAPY.

AVIATION. See AERONAUTICS.

BABCOCK, JOHN BRECKINRIDGE. An American military officer, died April 26, 1909. He was born in New Orleans in 1847. He enlisted in the Civil War, and reached the rank of major. After the war he took part in the campaigns against the Indians in the southwest. A medal of honor was awarded him for meritorious services. He was made a brigadier-general in 1903. In the war with Spain he served as brigadier-general of volunteers.

BABCOCK, JOSEPH WEEKS. An American legislator, died April 27, 1909. He was born in Swanton, Vt., in 1850, and removed West with his parents in 1855. He engaged in the lumber business in Wisconsin. In 1888 and 1890 he served in the Wisconsin Assembly and was elected to Congress from 1893 to 1907. He was chairman of the National Republican Congressional Committee in the campaigns of 1894, 1896, 1898, 1900 and 1902.

BABYLON, EXCAVATIONS IN. See ARCHÆOLOGY.

BACON, ROBERT. An American diplomat, nominated in December, 1909, Ambassador to France. He was born in 1850, and graduated from Harvard University in 1880. He was for many years member of the firm of J. P. Morgan & Co., and in 1905 was appointed Assistant Secretary of State. Following the resignation of Elihu Root, Secretary of State in 1909, Mr. Bacon was appointed Secretary of State for the remainder of President Roosevelt's term. He is a member of the Board of Overseers of Harvard University and a member of the Central Committee of the American National Red Cross.

BAHAMAS. About 20 inhabited islands and many uninhabited isles and islets, southeast of Florida, constituting a British colony. The capital is Nassau, on New Providence island. The area is stated at 4404 square miles; other estimates place it at 5450. The population in 1901 was 53,735; estimated, 1908, 60,283, mostly negroes. There were, in 1907, 46 government schools, with 6026 pupils; 16 aided schools, with an attendance of 1199; 27 Anglican schools with an enrollment of 1541; and 13 private and 4 Roman Catholic schools with 181 and 492 pupils enrolled respectively. Sponge gathering is an important industry. Pineapples, oranges, bananas, tomatoes and other fruits and vege-

tables are cultivated. Sisal culture is increasing in importance. Sponge exports in 1908 were valued at £94,161; sisal, £42,627; pineapples, £11,856. The principal imports are food-stuffs, wines and spirits, cotton goods and hardware. In 1907 and 1908, total imports were £372,937 and £369,490 respectively; total exports, £233,232 and £183,558; revenue, £89,694 and £81,861; expenditures, £79,790 and £99,655; public debt, £66,680 and £63,124. The Governor in 1909 was Sir William Grey-Wilson.

BAIN, ROBERT NISBET. An English scholar and librarian, died in May, 1909. He was born in 1854 and was educated in private schools. He was engaged in business until 1883 when he was appointed assistant librarian of the British Museum, a post which he held until his death. He was a profound student, and was a specialist in Scandinavian and Slavonic studies. Among his published works are: *Gustavus III. and His Contemporaries* (1894); *Hans Christian Andersen; a Biography* (1895); *Peter III., Emperor of Russia, 1762* (1902); *The First Romanovs, 1613 to 1725, a History of the First Muscovite Civilization and the Rise of the Modern Russian State* (1905). He also edited and translated the works of many Scandinavian and Slavonic writers.

BAKELITE. See CHEMISTRY, INDUSTRIAL.

BALDWIN, ELIAS JACKSON. An American capitalist and mine owner, died March 1, 1909. He was widely known as "Lucky Baldwin," and was one of the most picturesque of the remarkable group associated with the discovery of gold in California and Nevada. Baldwin was born in Butler County, Ohio, in 1828. After some years spent on a farm he started, in 1850, for the West. He arrived in San Francisco almost penniless. After many vicissitudes he bought an interest in the Ophir mine, one of the Comstock lode properties in Virginia City, Nev. The mine was generally supposed to be a poor one, but Baldwin by secret examinations discovered its riches, and secured options on a controlling portion of its stock. His profit in this was over \$3,000,000. Other successful speculations followed, combined with dealings in real estate, until his fortune exceeded \$20,000,000. His lavish expenditures made him famous. He built the famous Baldwin Hotel in San Francisco at a cost of over \$2,000,000. This was burned in 1898, without insurance, and this disaster marked the ebbing of Baldwin's fortunes. His great properties, including a ranch of 40,000 acres, became encumbered, and soon but little of his fortune remained. At the age of 75 he went to Alaska to make another, but returned without it. By the sale of various properties he was able to clear the debt from his ranch, and there he spent his remaining days.

BALKAN QUESTION. INTRODUCTION. The acute crisis which was expected to follow the course of Austria-Hungary and Bulgaria in violating the treaty of Berlin as against the rights of Turkey, was deferred till 1909. Prince Ferdinand of Bulgaria declared Bulgaria's independence, it will be remembered, on October 5, 1908. Two days later Austria-Hungary, after giving notice to the Powers, announced the annexation of Bosnia and Herzegovina to the Imperial Monarchy, promising them a constitution and at the same time, by way of compensation, declared that the Sanjak

of Novi-Bazar would be given back to Turkey. On the same day the Cretan authorities declared Crete a dependency of Greece. For a time it was feared that war was inevitable, but there were soon signs that the points at issue would be adjusted by negotiation. As to the Cretan question, the Powers promptly warned the Cretan authorities that they would undertake negotiations on the subject with Turkey, only on condition that order was maintained on the island. Negotiations between Turkey and Bulgaria, and Turkey and Austria-Hungary were pending at the close of 1908 with prospects of a satisfactory settlement. As to the proposed conference of the Powers signatory to the treaty of Berlin, Austria-Hungary and Russia could not agree on a programme, the former holding that the abrogation of Article 25 of the treaty should be matter of separate agreement between her and Turkey in advance of the Conference, and Russia insisting that the Conference should be left freely to discuss the subject of annexation. Austria on December 10 indicated a willingness to discuss the subject with the other Powers in advance of a Conference to which the discussion would afterwards be submitted. On December 23 Russia notified the Powers that she had consented to this and also to Austria's direct negotiation with Turkey, believing that the Conference would have the ultimate decision. Baron von Bienerth informed the Reichsrath, on December 17, that the condition of holding a Conference was that an agreement on its programme be reached in advance. The Italian Foreign Minister, Signor Tittoni, had previously (December 4) shown a tendency hostile to the policy of Austria by declaring that not Turkey alone, but all the Berlin signatories were concerned with the annexation. Montenegro demanded the cession of Spizza in Dalmatia, and Austria-Hungary having refused this in December, Montenegro organized a boycott against Austro-Hungarian goods. Negotiations between Turkey and Montenegro resulted in an agreement upon a slight readjustment of the frontier. Such in brief was the course of diplomatic events to the close of 1908. The main issue in the year 1909, lay between Serbia and Austria-Hungary, in which countries popular feeling became so embittered as at one time to threaten war. The points in this dispute, as well as the terms of Turkey's claims against Austria-Hungary and Bulgaria, will be found in the succeeding paragraphs.

THE AUSTRIAN AND BULGARIAN INDEMNITIES. The principle on which Austria seemed at first to take her stand was that having taken nothing from Turkey she could not admit Turkey's right to claim compensation. She urged that she was giving back more than enough in restoring Novi-Bazar. But the Turkish boycott of Austrian goods, which prevailed in the closing months of 1908, brought Austria to a more serious view of the situation and she finally acceded to certain of the Turkish demands; namely, the increase of Turkish customs duties to fifteen per cent., the establishment of Turkish monopolies in cigarette paper and matches, the personal and religious freedom of the Moslems in Bosnia-Herzegovina, the eventual suppression of the Austrian post-offices in Turkey, modifications of the capitulations and abrogation of certain privileges as to the Albanian Catholics. But to the demand of

Turkey for an indemnity of 100,000,000 francs Austria at first refused to accede. Later, however, she offered 50,000,000 francs and finally struck a bargain at £T2,500,000 (62,500,000 francs). These negotiations took place in January and February, 1909, and the protocol embodying the above terms between the two countries was signed on February 26. It was approved by Turkey on April 5, after a debate of nine hours in the Turkish Chamber. Between Bulgaria and Turkey the question was soon marked by a great divergence as to the amount of indemnity for the Oriental Railway and the Rumelian tribute, the Bulgarian government offering 80,000,000 francs and the Turkish government claiming 120,000,000 francs, and insisting also, at first, on the rectification of the frontier. This latter demand was vigorously opposed in Bulgaria, where the mobilization of a division of the army was begun, and for the moment war seemed inevitable. At this point, however, Russia offered a rather ingenious solution of the problem in a compromise which would apparently not sacrifice either party. Under the Convention of 1882 Turkey was required to pay Russia an annual indemnity of 8,000,000 francs in gradual liquidation of the war debt of 1876. This yearly payment had still 74 years to run. Russia offered to remit the annual payment for fifteen years, which would thus come to the 120,000,000 francs claimed by Turkey from Bulgaria. In return for this Bulgaria was to turn over her indemnity to Russia, but Russia was willing to accept only the 80,000,000 francs which Bulgaria regarded as the outside limit of her indemnity to Turkey. Thus Turkey would receive all that she asked for and Bulgaria would pay no more than she was willing to pay, Russia standing the loss. This was received with approval in Bulgaria, but at first somewhat doubtfully in Turkey, whose government not only preferred cash, but was somewhat suspicious of Russian meddling. After a short consideration Turkey offered as counter-proposal the immediate payment of her war debt to Russia. To this Russia replied that it was better to separate the two questions and to consider first the difference with Bulgaria. The essence of this Turkish proposal was that Turkey would renounce all claims against Bulgaria if Russia would consider Turkey's war indemnity to her as already liquidated in full. In spite of the failure to agree, a settlement of the question by peaceful means seemed at this stage promising and Bulgarian troops were withdrawn from the frontier and her reservists disbanded. Finally on March 16 the protocol between Russia and Turkey was signed at St. Petersburg, by which instalments of the indemnity, sufficient to enable Turkey to borrow £5,000,000, the amount that she claimed from Bulgaria, were to be capitalized at five per cent. and Russia was to agree to the liquidation of the balance at four per cent. The agreements signed between Turkey and Bulgaria settled all questions between the two governments and Turkey acknowledged the independence of Bulgaria.

QUARREL WITH SERBIA. The trouble with Serbia arose from racial aspirations. Austria on the face of it owed Serbia nothing, for she had taken nothing away, Bosnia and Herzegovina being dependencies of Turkey. But the large proportion of Bosnia was Serb. The annexation not only roused Serbia from her dream

of a "Greater Serbia," which should comprise the Serb elements in the provinces, but stirred the suspicion that Austria's ultimate object was the annexation of Serbia itself. Some went so far as to say that, since it was certain that Austria would ultimately absorb Serbia, it would be good policy to bring on a war, which would result in their conquest, to be sure, but would unite them with their fellow Serbs under Austrian rule; in other words, they favored the sacrifice of their independence for the sake of strengthening their nationality. It was also urged that in the event of war Russia would be forced by her strong Slavophile tendencies to take Serbia's part. The dispute dragged on for months without settlement. (See *SERBIA*, paragraph *History*.) Serbia desired the strip of territory that would join her territory to Montenegro and give her access to the sea, though she did not officially formulate the demand. Austria declared such a claim untenable, and declared that any demand for territorial compensation must be disavowed. There was no further discussion for a time, but a state of irritation prevailed in both countries. Serbia's course compelled Austria to hold herself in readiness for war at any moment. France, Great Britain and Russia favored a policy of conciliation, urging that Austria should make some concessions, but from this the German government dissented on the ground that Austria had already given sufficient pledge of her peaceful intentions. The Powers then decided to bring pressure to bear upon Serbia, but Russia wished at first to exercise her influence alone. The Russian Note to Serbia declared that there was no hope of territorial aggrandizement, but that if Serbia gave up this demand the Powers would do their best to gain for her certain important economic concessions. Serbia needed new commercial outlets. It was in fact possible for Austria to stifle her trade. But Serbia still hoped that a Conference of the Powers would grant her some compensation. Against this idea Austria had consistently protested from the first. Austria began to prepare for war early in the year, reinforcing her troops on the frontier and in Bosnia, and by March the military preparations amounted to actual mobilization. Anger against Serbia for keeping the empire in suspense in this matter steadily increased. In March, Serbia agreed to the Russian request that territorial compensation should not be demanded, and in an official note informed the Powers that she renounced her claim to any sort of compensation and that, having every confidence in the justice of the Powers, she left the whole affair to the decision of a European Conference. Austria was not satisfied with this, but desired an explicit declaration that would cancel the statement previously made by Serbia, that she would not accept Austria's annexation of Bosnia. Austrian opinion was irritated by what she considered an attempt on Serbia's part to shelter herself behind a Conference of the Powers. Austria now had recourse to commercial pressure. The treaty of commerce between Serbia and Austria was to expire on March 31. The Austrian Minister at Belgrade, Count Forgash, informed the Serbian government that owing to the attitude of Serbia for some months past it was unlikely that Austria could induce the Parliament to agree to a new commercial treaty, but that Austria would resume trade negotia-

tions as soon as she received assurances that Serbia would return to a peaceful and neighborly attitude. On March 10 Serbia addressed a Note to the Powers, declaring that she had no intention of provoking a war with the Imperial Monarchy; that she would continue to fulfill her duties as neighbor and that, confiding in the wisdom and justice of the Powers, she had placed her cause in their hands as a competent tribunal, not demanding therefor, any compensation from Austria-Hungary, whether territorial, political or economic.

SERBIA'S HUMILIATION AND THE TRIUMPH OF GERMAN DIPLOMACY. The Austrian press immediately pronounced this declaration of Serbia insufficient and the Austrian government through its minister, Count Forgash, presented its demands, saying that Austria would take the necessary measures to enforce them if they were not met. Several days were allowed for consideration. Meanwhile Great Britain, France and Russia intervened for the purpose of devising a formula that should be acceptable to both Serbia and Austria. A new formula prepared by Great Britain was rejected by Austria which proposed one that in turn was not acceptable to Great Britain and France. While the Powers were considering the sending of a new proposal, Baron von Aehrenthal submitted a second one which was almost identical with his first. At this juncture Russia took Europe by surprise by the sudden announcement of her agreement to the Austro-Turkish understanding and her recognition of the annexation of Bosnia and Herzegovina as an established fact. The formula which Serbia finally accepted on March 31 expressed Serbia's conformity with the decision of the Powers as to the annulment of Article 25 of the Treaty of Berlin, and of the consequent recognition of the annexation of Bosnia and Herzegovina, and her promise to adopt an attitude of good neighborhood and dismiss her reserves. On April 8 the Powers finally gave their assent to the abrogation of Article 25 of the Treaty of Berlin, thus recognizing the annexation. The action of Russia on this occasion was the most sensational event in the European diplomacy during the year and gave rise to very extended discussions. Her change of front as to Serbia's demands without consultation with the Powers with which she had formerly cooperated was attributed to the energetic demands of Germany. The Russian Note made no reference to a European Conference or to international ratification. It came without warning to France or England, and was generally regarded as a backdown from the position which she had formerly held, and which those countries had assumed largely by the force of her example. This was attributed solely to the fear of a war with Germany which was thought to have been threatened by implication in the German diplomatic communications. The incident was compared to the course of German diplomacy in 1905 when under similar circumstances France was driven to the Conference of Algeiras. Undoubtedly the peaceful adjustment of the dispute with Serbia was due to this action of Russia. Great Britain and France did not hold out for any concessions to Serbia and there was now no difficulty in the way of adjustment. Public opinion in Russia was deeply stirred by what was considered her humiliating retreat. Slavophile feeling had been aroused by the Austrian annexation which

was regarded as an encroachment of Pan-Germanism. On the news of it the first to broach the subject of a Conference was M. Isvolsky, the Russian Foreign Minister. At the same time the Russian government had from the first refused to regard the annexation as a possible *casus belli* and it was already known in Austria that in spite of the insistence of the British and Russian Press there was really no force behind their demands. Isvolsky's course was criticised as placing Russia in a position which she could not hold and allowing her to give the impression of insisting on something that she was not prepared to enforce. So it seemed that Germany, realizing that force was the only effective argument, brought the matter squarely to an issue and Russia was compelled to back down. Such was the general tenor of the comments on the affair in the European press. In Russia all classes united in condemning her diplomacy. The *Novoe Vremya* declared that M. Isvolsky's change of front might destroy Russian influence in the Balkans for a hundred years. Only the Moderate Right defended it. According to newspaper reports at the time the German demands were laid before an urgently summoned Council of Ministers and were couched in such terms as to leave Russia no alternative but mobilization, whereupon the majority voted acceptance. It was also currently said that Germany had already made military preparations and that there was an active propaganda carried on in Germany for fomenting an insurrection in Russian Poland.

OTHER EVENTS. There was a tendency in certain quarters during the year to blame Austria less for her Balkan policy and to lay more of the responsibility upon Ferdinand of Bulgaria. It was pointed out that in the first place he had coöperated with Austria in order to secure Bulgarian independence, and then made advances to the Russian government which did not approve the annexation. When the crisis in Bulgaria and Turkey on the question of indemnity became acute, he let it be known that Russia's intervention would be acceptable. Such a course was popular in Russia on account of the strong Slavophile sentiment and accordingly the Russian government intervened. Ferdinand's next aim was to secure Russian recognition of his kingship. To this end he sent a telegram on the death of the Grand Duke Vladimir, indicating his wish to attend the funeral. To refuse this request would have given offense, and equal offense would be given if on accepting it Russia did not recognize him as king. Under the circumstances Russia decided to receive him as a sovereign but declared officially that this would not in any way prejudice the question of his recognition. Nevertheless it would not be easy for Russia to disregard this previous action of hers if a Conference should be held. The course of Ferdinand on this occasion and others was praised for its shrewdness. Early in the year disturbances were reported in Novi-Bazar owing to friction between the Serbs and the Moslems. The Albanians burned two Serb villages and a number were killed and wounded on each side. The Albanians offered resistance to the Turkish troops who tried to restore order and two Albanian villages were burned. Early in the year the Macedonian question came up in the Turkish Chamber and it was reported that racial conflicts still continued and that the inhabi-

tants were carrying arms in violation of the government's orders. There was also trouble in the Rumelian vilayets over the question of the churches, and the Premier advised that the minority in the community should have the right to build churches. The Chamber expressed confidence in the government and asked for a bill to suppress the Macedonian disorders. (See **TURKEY**, paragraphs on *History*). It was announced that on April 2 the Russian government declared to the signatory Powers of the Berlin Treaty, that since Russia had consented to the repeal of Article 25 it seemed no more than fair to repeal the provisions of Article 29, which restricted Montenegrin sovereignty. It asked the Powers to consent to this repeal. On April 6 the Italian Minister on behalf of the Powers offered proposals for the settlement of the Montenegrin difficulty. Montenegro in reply agreed that Antivaris should keep its commercial character, declaring its confidence in the good relations with Austria and its willingness to abide by the repeal of Article 25 as regarded Bosnia. Early in April Great Britain, Italy and Germany recognized the annexation of Bosnia and Herzegovina, consenting to the abrogation of Article 25. The Austrian government published an order for the discharge of the reserves in Bosnia and Herzegovina. Amicable arrangements were reached in the same month between Austria and Servia as to a commercial treaty. It was understood that as a result of negotiations between Italy and Montenegro and between Montenegro and Austria, the question as to Article 29 was satisfactorily adjusted. Before the end of April, France and Russia having consented, all the Powers had formally agreed as to the annulment of Article 25. Austria conceded an autonomous administration to the Moslems, as to religious matters, endowments, and schools. In November disturbed conditions were reported as still continuing in Macedonia where the attitude of the Bulgars was causing anxiety.

BALLINGER, RICHARD ACHILLES. An American lawyer and cabinet officer. He was born in Boonesboro, Ia., in 1858, and graduated at Williams College in 1884. He studied law and on his admission to the bar began practice in Seattle, Washington. In 1890-2 he was United States Court Commissioner, and later was Judge of the Superior Court of Jefferson county. He was Mayor of Seattle from 1904 to 1906, and in 1907 was appointed Commissioner of the General Land Office, which office he held when he was invited by President Taft to become Secretary of the Interior in his cabinet. Mr. Ballinger took an active part in the prosecution of persons for land frauds in the northwest. He was a member of the law firm of Ballinger, Ronald and Battle, and was considered one of the ablest lawyers on the Pacific Coast. For an account of the controversy resulting from his attitude toward public lands and irrigation projects, see **LANDS, PUBLIC, and UNITED STATES**.

BALLOON. See **AERONAUTICS**.

BALLOT REFORM. See **ELECTORAL REFORM**.

BANK, CENTRAL. See **CENTRAL BANK**.

BANKS AND BANKING. The year opened with an easy money market and the general banking situation free from disturbing factors. This was true of conditions in England, Ger-

many and France, as well as in the United States. The great abundance of money led to interest rates below the normal during the greater part of the year. During the first six months money on call could be had from New York banks at less than 2 per cent., and even down to 1 per cent.; time loans were uniformly below 4 per cent. until the third week in August, and gold was being shipped abroad at interest rates as low as $2\frac{1}{2}$ per cent. Nevertheless the outstanding circulation of national banks steadily increased. (See NATIONAL BANKS.) The Bank of England maintained a discount rate of 3 per cent. until about April, but was thus practically excluded from the English money market. It therefore reduced its rate to $2\frac{1}{2}$ per cent. At the same time money was lending in London at $1\frac{1}{2}$ to $1\frac{3}{4}$ per cent and in Paris at as low as $1\frac{1}{4}$ per cent. American gold exports aggregated \$60,000,000 during the first half year and \$130,000,000 for the twelve months; about one-half of this was for South America, \$55,000,000 to the Argentine Republic alone. About \$30,000,000 were sent to Japan. The total gold exports exceeded those of any preceding year, and the vast sums sent to South America formed a unique feature of the year's banking.

In spite of the apparent excess of money in the New York market, foreign bankers continued throughout the year to place large sums in this country. Fully \$100,000,000 was so placed during the single month of June. This unusual situation was explained by the keen desire of foreign bankers to lend; by the extraordinary amounts of new securities being carried by American bankers; by the presence in the stock market of large interests carrying enormous blocks of widely diversified stocks; and by the profit from importing money, the rates of exchange being near the gold export point throughout the year.

During August a change in the general banking situation became manifest. Western banks began to withdraw deposits from New York banks preparatory to crop movements. The latter banks held surplus reserves amounting to more than \$30,000,000 in January, and to \$34,259,000 on July 17, but early in September the surplus reserves had fallen to \$3,166,000, being much below the average for that time of year. Early in October this surplus fell to \$1,600,000, the lowest at that date in twenty years. Call loans advanced to 3 per cent. by September 18, to $4\frac{1}{2}$ per cent. by October 2, and to as high as 6 per cent. at numerous times during the succeeding three months. Time loans during this time were at about 5 per cent. Early in September the Imperial Bank of Germany advanced its rate from $3\frac{1}{2}$ to 4 per cent., with the avowed purpose of checking the excessive stock speculation in Berlin. Near the middle of October the Bank of England advanced its rate to 3 per cent. and followed this with other advances up to 5 per cent. At the same time the Imperial Bank of Germany put its rate up to 5 per cent. These facts indicated clearly a world-wide tightening of the money market. The causes of this were the general revival of trade, the flotation of immense amounts of new securities, and an almost unprecedented volume of stock speculation, especially in New York and Berlin. Thus bank reserves had been reduced while loans and discounts had been increased.

The total stock of gold held by the New York Associated Banks in November, 1909, was \$246,

880,000, or \$55,220,000 less than in November, 1908; that held by the Bank of Germany was \$241,795,000, or \$31,480,000 less; that held by the Bank of England was \$176,725,000, or only slightly less. On the other hand the Bank of France held the enormous sum of \$711,900,000 in November, 1909, or \$44,000,000 more than in November, 1908; and the Bank of Austria held \$284,950,000, or \$41,000,000 more. These great banks thus held altogether about the same amount of gold on these two dates, thus indicating that the new stock of gold mined in 1909, amounting to about \$440,000,000, had gone into South America, Japan, smaller European banks, and American banks outside of New York.

A statement of the aggregate banking power of the United States and of the entire resources and liabilities of all banks and banking institutions in this country, including island possessions, was prepared by Prof. A. Piatt Andrew, expert adviser to the National Monetary Commission. This summary of reports for April 28, 1909, was the first complete statement ever made on a uniform basis for all banks. It showed the aggregate resources of the 22,491 banks included to be \$21,095,054,000. These included loans and discounts, exclusive of overdrafts, \$9,924,816,000; securities, \$4,614,442,000; and mortgages, \$1,378,701,000. The liabilities included deposits subject to check, \$6,956,502,000; time deposits, \$1,211,831,000; savings deposits, \$4,926,161,000; capital stock paid in, \$1,800,036,000; and surplus and undivided profits, \$1,834,625,000. As compared with 1908 the aggregate assets were \$1,512,000,000 larger, while they were just double those of 1900.

The loans and discounts were about ten per cent. larger than in 1908. About 57 per cent. of the loans were secured by collateral, including real estate. The demand loans secured by collateral amounted to \$1,939,635,000, of which about 60 per cent. were placed by New York city banks. The time loans secured by collateral amounted to \$2,036,358,000, and those secured by real estate amounted to \$1,127,276,000. Time loans with two or more names, unsecured by collateral, amounted to \$2,539,965,000, of which one-third was placed by banks in the Eastern States and one-third by those in the Middle Western States.

The aggregate deposits exceeded those of any previous year, showing an increase of somewhat more than \$1,250,000,000 over those of 1908, and being about double those of 1900. Of the deposits 15 per cent. were held by New England banks, 43.3 per cent. by banks in the Eastern States, and 22.7 per cent. by those in the Middle Western States. National banks held 34.4 per cent. of the total deposits, savings banks, 26.4 per cent., loan and trust companies, 20.2, State banks, 17.6 per cent., and private banks, 1.4 per cent. Assuming a population of 89,000,000 the average per capita deposits were \$157.70, as compared with \$146 in 1908.

GUARANTY OF DEPOSITS. The guaranty of bank deposits became an important issue immediately after the crisis of October, 1907, through the advocacy of William J. Bryan and its subsequent adoption in the Democratic platform. The enactment of a State guaranty law by Oklahoma in December, 1907, at once aroused wide discussion of the subject in the Great Plains States. During 1909 Oklahoma modified her law on the subject and Kansas, Ne-

braska, South Dakota and Texas enacted new ones.

During the fall there were several failures of Oklahoma State banks, giving a rather severe test to the new system. In September the Columbia Bank and Trust Company of Oklahoma City, the largest bank in the State, failed with large liabilities. The entire guaranty fund was consumed and a special assessment was made necessary. The failed bank held reserve deposits of a number of other banks in the State. These latter resented paying the full assessment while unable to get their deposits. The bank was apparently in sound condition on September 1, and it was therefore charged that its funds had been maliciously manipulated. Pending an investigation of the affair by the State Banking Board the indictments of the accused officials were held up by Governor Haskell. Somewhat later two other banks failed and the guaranty fund was again wiped out. Whereas in the preceding case some dissatisfaction resulted from the payment of local depositors first and more distant ones later, in these subsequent cases some dissatisfaction resulted from the payment of some depositors in the bank's commercial paper and the inability to pay others anything by the close of the year. These failures made it possible for outside critics of the deposit guaranty idea to point out certain alleged tendencies. It was stated that the guaranty law, putting good and bad bankers on a level as regards the depositor's safety, made it possible for unscrupulous bankers to secure large deposits by paying very high rates of interest on them. It was even charged that some bankers were paying more than the 4 per cent. (or 3 per cent. on deposits left in bank less than six months), as prescribed by law, by making interest payments personally. It was stated also that a speculative element had been introduced into banking, leading to a mushroom growth of banks; and that the risk to promoters was reduced to a minimum, as shown by the fact that the majority of the new banks were capitalized at the legal minimum of \$10,000. It was pointed out that numerous State and national banks had reorganized with a small capitalization, thus reducing the safety of the banking system and the checks to speculative methods. While critics outside the State were asking what, in the light of the above experience, would happen if several leading banks should fail simultaneously, and declaring that the real test of the whole system would come at a time of financial stringency, the bankers of Oklahoma themselves were protesting their general faith in the successful outcome of the experiment and pointing to greatly increased business under it. The law was modified by the 1909 legislature by providing that, instead of a reserve fund of 1 per cent. of average annual deposits, a fund equal to 5 per cent. of the total deposits of State banks shall be accumulated by assessments not exceeding 2 per cent. in any one year. If at any time the guaranty fund prove inadequate, the banking board is authorized to issue 6 per cent. certificates based on the subsequent 2 per cent. assessment. Banks are prohibited from advertising that their deposits are guaranteed by the State. The modified law also requires that 75 per cent. of the guaranty fund shall be invested in those securities in which the State invests its own money,

the other 25 per cent. being retained in cash. A case testing the constitutionality of the Oklahoma law was taken to the Supreme Court of the United States in September, 1908, and was still pending at the close of 1909.

The Kansas law, in effect June 30, 1909, authorized State and national banks voluntarily to form a guaranty fund under the State banking department, by contributing annually not more than five assessments of one-twentieth of 1 per cent. of deposits. National banks, however, were forbidden to participate by the Attorney-General of the United States, on the ground that the law does not permit them to pay assessments to meet the obligations of other banks. National banks in Kansas at once formed an insurance company, which by the terms of its policy guaranteed to make good to any failed bank holding one of its policies any portion of its liabilities not covered by assets. This scheme, with slight modifications of certain original details, was upheld as lawful by Attorney-General Wickersham in May. The guaranty law was subsequently declared unconstitutional by Justice J. C. Pollock, of the United States District Court, at Topeka, as in violation of the Fourteenth Amendment.

The Nebraska law, in effect July 2, was like that of Oklahoma in being compulsory on all State banks. It authorized the banking board to levy four semi-annual assessments of one-half of 1 per cent. to establish a guaranty fund, this fund thereafter to be maintained by semi-annual assessments of one-twentieth of 1 per cent. The law does not guarantee immediate payment, but authorizes emergency assessments not exceeding 1 per cent. annually. The maximum legal rate of interest that banks may pay on deposits is put at 4 per cent.

The Texas law provides two schemes, both voluntary. One provides for the accumulation by each bank individually of bonds, approved by the State Banking Board, equal in amount to twice the deposits. The other is a mutual plan, the banks entering it being required to accumulate a fund of \$300,000, to be used in paying losses of depositors and to be kept intact.

The new South Dakota law does not qualify as a full-fledged guaranty law. It requires the participation of at least 100 banks with aggregate capital of at least \$1,000,000. These banks are to form an incorporated association, with a charter fee of \$100 and an annual premium of one mill on each one dollar of average daily deposits. This will create a deposit insurance fund, to be supervised by the State Bank Commissioner, and from which losses of depositors of failed banks are to be paid on the insurance principle. The law limits the interest that may be paid on deposits to 5 per cent.

Two bills were introduced in the Colorado Legislature, but one was passed by the Senate and the other by the House, and no compromise agreement could be reached regarding them.

There can be no doubt that the deposit guaranty idea has been and still is very popular in the agricultural sections of the country. One chief reason for this is that the farmer, in times of prosperity, is not, as is the merchant and manufacturer, both borrower and depositor, but seeks first a place of safety for his surplus cash. The past ten years have been ex-

tremely prosperous for the farmers, who are seeking above all else safety for their bank deposits. It is still too early to pass any conclusive judgment on the plans in operation.

See NATIONAL BANKS, STATE BANKS, LOAN AND TRUST COMPANIES, SAVINGS BANKS, CENTRAL BANK CURRENCY, AND FINANCIAL REVIEW.

BAPTISTS. A religious denomination which received its name in 1644 from the designation applied to certain congregations of English Separatists, by whom the ancient practice of immersion had been recently restored. The denomination was founded in the United States by Roger Williams, who, about the middle of the seventeenth century, established the first congregation in the United States at Providence, R. I. There are fourteen divisions of the denomination in the United States, but the so-called "regular Baptists," North, South, and colored, differ only in organization, having no doctrinal distinctions. The total membership of these bodies is given by the *American Baptist Year Book* for 1909 as 5,115,177, comprising the greater number of communicants of the Baptist churches. The membership of the Baptist bodies of North America is estimated by the same authority in 1909 at 5,293,170, ranking third among the religious denominations of the United States. The designation and number of communicants of the various bodies are as follows: Regular Baptists, 5,115,177; Free Will Baptists, 78,771; General Baptists, 32,250; German Baptists, 122,332; Primitive Baptists, 126,000; Seventh Day Baptists, 8366; other Baptist bodies, seven in number, 62,024. There were in the regular Baptist denomination in 1909 48,302 churches, 34,132 ordained ministers, and in the Sunday schools were 2,386,300 scholars and 235,156 officers and teachers. The value of the church property was \$125,214,095. The total contributions from all sources during the year was \$22,813,864. Of this amount, \$17,504,444 were for church expenses; \$832,090 for Sunday school expenses; \$819,692 for city missions; \$705,628 for home missions; \$865,585 for foreign missions; \$84,806 for Bible and publication work; \$323,503 for education, and \$1,512,744 for miscellaneous. Missions are carried on by the church in Burma, Assam, South India, China, Japan, Africa, the Philippine Islands and in Europe. There are under the missions of the church in Europe 1143 churches, 1410 preachers, 135,566 communicants, and 2365 Sunday schools with a membership of 113,825. In missions in heathen lands there are 1322 churches, 331 ordained preachers, 143,873 members, and 1531 Sunday schools, with a membership of 53,917. The missions of the church are under the conduct of the American Baptist Missionary Union and the American Baptist Home Missionary Union. The Southern Baptist Convention, which is the organization of the Southern Baptists, maintains missions in South America, in Italy, Africa, China, and Japan. The denomination has organized bodies in each of the States of the Union for the carrying on of missionary, educational and other work. Among other organizations of the church, whose titles sufficiently indicate their purpose, are the American Baptist Publication Society, the American Baptist Home Missionary Society, and the Woman's Baptist Foreign Missionary Society. The German Baptist Conference has

general charge of work among the Germans and the Swedish Baptist Conference has charge of the work among the Swedes of the Northwest. The denomination maintains ten theological seminaries, which in 1909 had 1303 students, with 112 instructors. The universities and colleges under the auspices of the denomination numbered 94, with an attendance in 1909 of 35,281, of whom 17,948 were males and 17,193 were females. In these institutions were 2232 instructors. Their endowments amounted to \$28,212,869. In addition, there are 84 other institutions, including academies, institutes and trade schools. These are found in all parts of the country.

The most important event in the history of the church in recent years was the founding in 1907 of the Northern Baptist Convention as the culmination of a movement which was designed to strengthen denominational unity and efficiency among Baptists throughout the North. At its first meeting a constitution was provisionally adopted and this was referred to the churches for ratification. This constitution was formally adopted by the Convention held in 1908. The object of the Convention is to combine in some organic order all the self-perpetuating and more or less independent societies through which the missionary activities of the church have hitherto been carried on and to affiliate this body with the Convention itself. A joint committee of the Convention and the societies was appointed to report at the meeting in 1909 the particular form which this affiliation was to take. This meeting was held in Portland, Oregon, on June 24. A finance committee, which had been appointed the previous year, reported remarkable success in the budget campaign carried on by the Convention. The societies which closed in the year 1908 with a debt of \$286,000 began the year 1909 without debt. The Convention was called upon to consider combination of these societies, which should at the same time maintain their charter rights and give a more denominational support and direction to their operations. Certain legal and other objections made it impossible to bring about this consolidation in 1909, but steps were taken to make a completion of the policy probable in 1910. The Convention received the reports of committees on social service and on city missions, which showed that great progress had been made during the year toward grappling with the great social questions which the churches face. The annual meeting of the Southern Baptist Convention was held at Louisville, Ky., on March 13, 1909.

BAPTISTS, FREE, sometimes called **FREE WILL BAPTISTS.** A religious body founded in 1780 by Benjamin Randall, who established a church in New Durham, N. H., after he had left the regular Baptists because of his disbelief in the doctrine of election. The doctrine and practice of the church correspond practically to those of the General Baptists of England. The denomination is strongest in New England, but has a considerable strength in the West. In 1909 it had a membership of approximately 75,000, with 1500 churches and 1250 ministers. During the year \$64,000 was raised for foreign and home missions. A plan has been on foot for several years to bring about a plan of union for the missionary work of the Free Baptists and the Baptists. This has been agreed upon by nearly all of the State Asso-

ciations. The Free Baptists maintain several colleges, among them Bates College at Lewiston, Me.; Rio Grande College at Rio Grande, O.; Storer College at Harper's Ferry, W. Va.; Parker College at Winnebago, Minn., and Hillsdale College at Hillsdale, Mich. A Theological Seminary is maintained in connection with this institution, and Keuka College at Keuka Park, N. Y., is maintained in connection with the Disciples. The *Morning Star*, edited by George F. Mosher, LL.D., is published at Boston, Mass. Rev. H. M. Ford, D.D., of Hillsdale, Mich., is the Corresponding Secretary of the General Conference.

BAPTIST YOUNG PEOPLE'S UNION OF AMERICA. A union of all the young people's societies in Baptist churches in the United States and Canada for the purpose of carrying on educational work, designed to train young people for efficiency in Christian work. The union was organized in Chicago in 1891. Its headquarters are in Philadelphia and Chicago. It has two monthly magazines, *Service* for the senior department, and *Our Junior* for the junior department. These two organs are now published by the American Baptist Publication Society in Philadelphia. In 1909 there were estimated to be 600,000 members of the organization. It is international in its scope, including all the provinces of Canada as well as the United States. The Rev. George T. Webb, 1703 Chestnut Street, Philadelphia, is the General Secretary.

BAR ASSOCIATION, AMERICAN. An organization of the leading lawyers of the State, founded in 1878. It meets annually for the purpose of discussing matters of interest to the profession. The object of the Association, as stated in the constitution, is to advance the science of jurisprudence; promote the administration of justice and uniformity of legislation throughout the Union; to uphold the honorable profession of the law, and encourage cordial intercourse among the members of the American Bar. Its membership in 1909 was about 3500 and the attendance at the annual meetings averages from 300 to 400. The thirty-second annual meeting was held at Detroit, Mich., in August, 1909. The retiring president, Frederick W. Lehmann, delivered his address upon the subject of "The Most Noteworthy Changes in the Statute Law During the Past Year." Mr. Georges Barbey, Paris, France, delivered an address upon "The French Family Law"; Judge Julian W. Mack of Chicago read a paper on "Juvenile Courts"; Judge William L. Carpenter of Detroit read a paper upon "Courts of Last Resort," and Governor Augustus E. Willson delivered an address upon "The People and Their Law." A special committee of fifteen, appointed to formulate methods to prevent delays and reduce cost of litigation, submitted its report and was directed to urge upon Congress the passage of certain laws aimed at reducing the number of appeals and also limiting the cost of litigation. Various other committee reports were also read. The officers in 1909 were: President, Charles F. Libby, Portland, Me.; Secretary, George White-lock, Baltimore, Md.; Assistant Secretary, Albert C. Ritchie, Baltimore, Md.; Treasurer, Frederick E. Wadhams, Albany, N. Y. The executive committee consists of the president, the secretary, the treasurer, the retiring presi-

dent, Frederick W. Lehmann of St. Louis, and William O. Hart of New Orleans, Charles Henry Butler of New York, Ralph W. Breckenridge of Omaha, Lynn Helm of Los Angeles and John Hinkley of Baltimore.

BARBADOS. The most easterly of the West Indian islands, constituting a British colony. Area, 166 square miles. Estimated population (1908), 194,477. The capital is Bridgetown, with about 35,000 inhabitants. In 1907 there were 165 primary schools, with an average attendance of 15,286 pupils, and several higher schools. The staple products are sugar and cotton; these, with molasses and rum, form the principal exports. The chief imports are rice, salted meat and fish, grain, flour, and textiles. In 1907-8 and 1908-9, imports were £1,271,530 and £1,225,870 respectively; exports, £935,256 and £948,178; revenue, £209,818 and £189,805; public debt, £404,900 and £410,900. There are 470 miles of roads and 28 miles of railway. The Governor in 1909 was Sir Gilbert Thomas Carter.

BARBER, AMZI LORENZO. An American capitalist, died April 18, 1909. He was born at Saxton's River, Vt., in 1848. Removing to Ohio, he graduated from Oberlin College in 1867. He taught for a time at Columbian University, and became professor of natural philosophy at that institution, remaining until 1872. He then went to New York City and in 1876 graduated at the Columbia University law school. Previous to this time, Mr. Barber, with Senator John Sherman, became profitably interested in real estate in Washington. It was proposed in 1876 to repave the streets of the capital, and a new material, asphaltum, was selected. Mr. Barber made himself thoroughly conversant with the manufacture of asphalt, and giving up his real estate enterprises, went into business as a paving contractor in 1878. In 1883 he incorporated the Barber Asphalt Paving Company. This company, after much litigation, secured control of the asphaltum lake in the island of Trinidad, then the most available source of supply. Mr. Barber, in 1898, formed the first of a series of asphalt combinations, called the Asphalt Co. of America. This company was in 1900 absorbed by the National Asphalt Co., which was unsuccessful, and from which Mr. Barber withdrew in 1901. In 1904 he started the A. L. Barber Asphalt Co., which became the rival of the reorganized National Asphalt Co. The latter owned, not only the Trinidad deposits, but the valuable lake in Bermudez, Venezuela. The attempts of Mr. Barber's company to wrest this lake from the possession of its rival, resulted in conditions which kept Venezuela almost in a state of civil war for years, and resulted in the retirement of two United States Ministers to Venezuela. These matters are a part of the political and diplomatic history of Venezuela and the United States from 1904 to 1908. Mr. Barber was one of the first manufacturers of automobiles in the United States, and was also active in real estate dealings around New York City.

BARCLAY, CHARLES JAMES. A rear-admiral (retired) of the United States Navy, died September 26, 1909. He was born in Philadelphia in 1843, and was appointed to the United States Naval Academy in 1860. He graduated in 1863 and went immediately into active service. He served in Southern waters during the

Civil War, and after its close was for several years at sea as a junior officer. In 1874 he was given command of the ironclad *Saugus*. For thirty-one years thereafter he commanded ships, important departments and stations. He was a well-known authority on torpedoes, gunnery and ordnance. From 1882 to 1891 he was ordnance officer for several vessels, and engaged in conducting experiments at the Portsmouth Navy Yard, where he was equipment officer from 1891 to 1893. In 1897 he was given command of the *Raleigh*, but in a few months was placed at the head of a new school for seamen gunners. He was commandant of the Naval War College in 1900, and commandant of the Puget Sound Navy Yard 1903-5. He was made a rear-admiral in 1903, and retired in September, 1905.

BARLEY. The barley crop had a very favorable season in 1909, being especially benefited by the good weather setting in with the beginning of May. The earliness of the crop enabled it to escape the drought of July and August. Owing to these favorable conditions a good yield was secured, especially in California and the northwestern spring wheat States. In California, where barley is now largely grown on former wheat lands, the acreage is at present nearly double that of wheat. The area devoted to barley in this country recently has been increasing from year to year and part of this increase has taken place in the spring wheat region, where the crop fits well into rotations followed. The year 1909 leads all others in acreage, the area being 7,011,000 acres, as compared with 6,646,000 acres in 1908. The total production of 170,284,000 bushels stands second only to the yield of 1906, when 178,916,484 bushels were produced. The production of 1909 was greater by 3,528,000 bushels than that of 1908 and the average yield per acre for the two years was 24.3 and 25.1 bushels respectively. The following table shows the acreage, yield and value of barley in the principal barley-growing States for 1909:

States	Acreage	Production	Value	States	Acreage	Production	Value
	Acres	Bushels	Dollars		A	B	D
Minn.	1,339,000	31,600,000	14,852,000	Iowa.....	495,000	10,890,000	5,009,000
Cal.	1,190,000	31,370,000	23,140,000	Wash.	182,000	7,192,000	4,601,000
Wis.	896,000	24,248,000	15,579,000	Kansas	270,000	4,860,000	2,578,000
N. D.	887,000	20,727,000	8,913,000	Nebr.	120,000	2,640,000	1,135,000
S. D.	1,021,000	19,910,000	8,960,000	Idaho.....	62,000	2,480,000	1,469,000

The average yield per acre in these States varied from 18 bushels for Kansas to 40 bushels for Idaho. Only three other States or Territories, New Mexico, Arizona, and Utah, reached an average production of 40 bushels per acre.

The world's total production of barley for 1909 is estimated by the Hungarian Ministry of Agriculture at 1,600,584,000 bushels or 334,000,000 bushels more than last year. The European barley crop of this year was generally quite satisfactory. In Great Britain the acreage was somewhat reduced, but the yield was estimated at about 3 per cent. better than the average. France produced a crop ranking above the five-year average, while in Germany the yield was a little below normal. The barley production of European and Asiatic Russia for

this year is estimated at over 400,000,000 bushels. Canada produced an average yield of 30.55 bushels per acre and a total crop amounting to about 55,000,000 bushels, this being about 6,000,000 bushels more than the year before.

While barley improvement is receiving attention in the United States, the results secured along this line are much less marked than the results of barley improvement in Europe, where special attention is given to bettering the brewing or malting quality. European brewers and investigators consider the relations between starch and extract content; protein content and starch and extract content; protein content and 1000-kernel weight; and the 1000-kernel weight and the percentage of hull as highly important in judging barley. Experiments carried on in Europe have shown that the proportion of hull and the structure of the hulls apparently bear no relation to the protein content of the grain.

BAROTSELAND. See RHODESIA and BRITISH SOUTH AFRICA.

BARROWS, SAMUEL JUNE. An American philanthropist and penologist, died April 21, 1909. He was born in New York City in 1845. His only formal early education was in the primary schools, as he earned his own living in a machine shop while he was still a boy. He became afterwards a stenographer and reporter. In 1867 he was stenographic secretary to W. H. Seward, then Secretary of State. He studied theology at the Harvard Divinity School, graduating in 1875. After further study at Leipzig he became, in 1876, pastor of the First Church (Unitarian) of Dorchester, Mass. He remained in this pastorate until 1881, when he became editor of the *Christian Register*. He resigned this position in 1897 on his election to Congress, where he served one term. In 1896 he represented the United States on the International Prison Commission. Mr. Barrows was one of the chief penological authori-

ties in the United States. He was one of the founders of the Massachusetts Prison Association; a member of the International Society of Comparative Criminal Law, and from 1900, corresponding secretary of the Prison Association of New York. He wrote *Shagbacks in Camp*; *Isles and Shrines of Greece*; *Crimes and Misdemeanors in the United States*, and many reports dealing with penology.

BARTH, THEODOR. A German politician and publicist, died June 2, 1909. He was born at Duderstadt in 1849 and studied at the Gymnasium Audrianum in Hildersheim. He spent three years in the study of law at the universities of Heidelberg, Leipzig, and Berlin, receiving the degree of J. U. D. at the University of Leipzig. In 1871-2 he practiced law in Bremen, from 1872 to 1876 held the office of

Magistrate in Bremerhaven, and from 1876 to 1883 was Secretary of the Chamber of Commerce. While filling the latter office he became an ardent advocate of free trade, and promulgated its principles and applications in a series of publications. When Bismarck reversed the policy of the government in this matter, Barth became one of his most effective and determined adversaries. In 1881 he entered the Reichstag from Gotha and in that body took his place among the members of the Liberal Union. In 1883 with Louis Bamberger, the advocate of economic freedom, he founded *Die Nation*, a weekly paper, and continued its editorship until 1907, when its publication ceased. For twenty years this journal was one of the most powerful influences in Germany among the political press. In 1885 Barth was again elected to the Reichstag as a German Liberal and sat in that body until 1898, and again from 1901 to 1903. He was also a member of the Prussian Landtag from 1898 to 1903. Throughout his career he was an energetic spokesman of Liberalism. His powers of oratory were great and in debate he was a formidable adversary. His antagonism to the Junkers, whose economic principles he detested, was particularly sharp and virile. Electoral reform in Prussia and the abolition of the present system received his staunch support. He met with bitter hostility on the part of the Agrarians, and it was particularly due to this, aided by unscrupulous election methods, that he lost his seat in the Reichstag. He was among those who in 1903 endeavored to bring about an alliance of all the Liberal elements against the common enemy, and he was in favor of enlisting the coöperation of the Socialists. This lost him many of his political friends in the National Liberal party. Barth always opposed steadfastly any reactionary movement and the progressive element suffered keenly from his death. A crisis was reached in 1898, when at a congress of the Liberal Union he and about twenty of the more radical members separated finally from the party, holding that the "bloc" was a hindrance to Liberalism. The new group thus formed aimed at representing the democratic tendency in uniting with the Socialists against reaction, holding that reaction was the most dangerous political menace of the times. Barth visited the United States several times, his last visit being in 1907. His writings on America include *Amerikanisches Wirtschaftsleben* (1887); and *Amerikanische Eindrücke* (1896). His other writings were chiefly contributions to his own paper and other reviews.

BARTLETT, FRANKLIN. An American lawyer, died April 23, 1909. He was born in Grafton, Mass., in 1847, graduated from the Brooklyn Polytechnic Institute in 1865, and from Harvard University in 1869, and studied law at Columbia University. He studied also at Oxford University. He began the practice of law in New York City, and within a few years became eminent in his profession. He was chief counsel in many famous cases. He took an early interest in military affairs, and in 1896 became colonel of the Twenty-second Regiment of the National Guard of New York, retaining that position until his death. He was elected to the Fifty-third and Fifty-fourth Congresses as a Democrat, but he refused to support the doctrines of W. J. Bryan.

He was a member of the constitutional convention of 1890, and took a prominent part in its proceedings.

BASEBALL. For the first time since 1903 Pittsburg last year won the National League championship, with 110 victories and 42 defeats. Chicago was second, with 104 games won and 49 lost, and New York third, with 92 games won and 61 lost. The other teams in the National League finished as follows: Cincinnati won 77, lost 76; Philadelphia won 74, lost 79; Brooklyn won 55, lost 98; St. Louis won 54, lost 98, and Boston won 45, lost 108. Detroit for the third successive year carried off the championship in the American League, winning 98 games and losing 54. The race in the American League was much closer than that in the National, owing to the unlooked for strength shown by the Philadelphia and Boston teams, which finished second and third respectively. Philadelphia won 95 games and lost 58, while Boston won 88 and lost 63. The standing of the other American League clubs was: Chicago won 78, lost 74; New York won 74, lost 77; Cleveland won 71, lost 82; St. Louis won 61, lost 89, and Washington won 42 and lost 110. The showing of the Washington team was the poorest ever made by a major league club. The series for the world's championship played between Pittsburg and Detroit was won by the National League champions, although the full quota of seven games had to be played before the contest was finally decided. The attendance at these games (145,295) and the receipts (\$188,302) broke all former records. The score of the championship games follows: Pittsburg 4, Detroit 1; Detroit 7, Pittsburg 2; Pittsburg 8, Detroit 6; Detroit 5, Pittsburg 0; Pittsburg 8, Detroit 4; Detroit 5, Pittsburg 4, and Pittsburg 8, Detroit 0. The victory of Pittsburg was in large measure due to the pitching of Adams, a newcomer in the league, who, because of the lack of condition of the older pitchers, had to be worked often. He showed himself equal to the task despite his inexperience, winning three of Pittsburg's four victories. The batting averages of the series were: Pittsburg .221, Detroit .235; and the fielding averages: Pittsburg .947, Detroit .937. The best individual batting averages were those of Delehanty (Detroit) .346, and Wagner (Pittsburg) .333. The total attendance at the major league contests was 7,978,108, the largest in the history of the game. The American League drew 3,740,570 persons and the National 3,637,538. Philadelphia in the American and New York in the National were the cities in which the greatest number of spectators gathered. The champion batter in the American League was Cobb of Detroit, who made 216 hits out of 573 times at bat, which gave him the high average of .377. Wagner of Pittsburg was again the leading batsman of the National League. He made 168 hits out of 495 times at bat, having an average of .339. Catcher Gibson of the Pittsburg Club established a new record in 1909 by taking part in 135 games, 134 of which were consecutive. The leading pitchers in the National League were Camnitz of Pittsburg and Mathewson of New York, each of whom won 25 games and lost 6. The most successful American League pitcher was Mullin of Detroit, who won 29 games and lost 8.

The first unassisted triple play ever made

In the major leagues was made by Ball, the Cleveland shortstop, on July 19 at Cleveland. The pennant winners in the principal minor leagues in 1909 were: American Association, Louisville; Eastern League, Rochester; Southern League, Atlanta; Western League, Des Moines; Tri-State League, Lancaster; Connecticut League, Hartford.

Among the college baseball teams the University of Pennsylvania showed the most consistent form, winning 21 of the important games scheduled and losing 4. The prominent teams defeated by Pennsylvania included Yale, Princeton, Georgetown and Lafayette. No game was arranged with Harvard, but the latter by losing its series with Yale lost all claim to being regarded as a first-class team. Of the other Eastern nines Princeton and Yale deserve special mention, the former winning 20 games and losing 10, and the latter winning 19 and losing 10. The college teams which made the best record for the season, although few teams of high class were met, was Michigan, which won 19 games and lost 3. Chicago in the West also made a good showing. The scores in Pennsylvania's most important games were: Pennsylvania 4, Georgetown 2; Pennsylvania 6, Georgetown 7; Pennsylvania 3, Georgetown 1; Pennsylvania 2, Yale 0; Pennsylvania 4, Princeton 3; Pennsylvania 4, Princeton 3; Pennsylvania 4, Lafayette 0; Pennsylvania 0, Cornell 1; Pennsylvania 7, Amherst 1; Pennsylvania 3, Amherst 8; Pennsylvania 0, Holy Cross 11; Pennsylvania 2, Holy Cross 1. Yale's principal games were: Yale 0, Georgetown 2; Yale 4, Virginia 2; Yale 2, Harvard 3; Yale 4, Harvard 0; Yale 5, Harvard 2; Yale 6, Princeton 0; Yale 2, Princeton 3; Yale 5, Princeton 2; Yale 0, Pennsylvania 2; Yale 0, Amherst 4; Yale 4, Cornell 3; Yale 2, Brown 4; Yale 4, Brown 1; Yale 3, Fordham 2. Princeton defeated Georgetown 5 to 4; Brown 3 to 2 and 3 to 2; Virginia 3 to 0; Dartmouth 6 to 5; Amherst 2 to 1, and Yale 3 to 2. Princeton lost to Georgetown 3 to 8; to Fordham 0 to 2; to Virginia 3 to 4; to Pennsylvania 3 to 4 and again 3 to 4; to Harvard 0 to 6 and 1 to 4, and to Yale 0 to 6 and 2 to 5.

BASKERVILLE, H. C. An American teacher, killed at Tabriz, Persia, on March 31, 1909, while leading an attack against the tribes besieging the city. He graduated from Princeton University in 1907, and accepted a position as teacher in the boys' school maintained in connection with the Presbyterian Mission at Tabriz. He became interested in the political situation in Persia, and, resigning his position, openly allied himself with the revolutionary movement. In the defense of the city against the troops of the Shah (see PERSIA, paragraph on History) Baskerville took a leading part. He repeatedly urged a sortie, but was unable to gain the help of the citizen troops until the time for such a movement had passed. Then, against his own judgment, he led a body of 150 men, which dwindled to nine, against the besiegers. He was shot through the heart at the head of his followers.

BASKETBALL. The basketball season of 1909 had an unsatisfactory ending in that it was impossible to arrange a series of games to decide the national championship among the colleges. Of the Eastern institutions Columbia

made a fine showing, losing only one game during the season. Pennsylvania, the only team to defeat Columbia, was ranked second by the experts. The team representing Yale, Harvard and Princeton played very poorly. Other Eastern colleges which were not members of the Eastern Collegiate League, but which had an excellent record, were New York University, the College of the City of New York, and Williams. New York University went through the season without defeat, and by some experts was rated an even better team than Columbia. Williams made a splendid showing by winning the New England championship. Among the Western colleges Chicago again showed superiority, winning twelve games and losing none. Wisconsin ranked second and Purdue third. Georgetown secured the highest rating of the Southern colleges.

Outside college circles basketball was played by hundreds of Y. M. C. A. branches throughout the United States. The best professional team was undoubtedly that captained by Hans Wagner, the Pittsburg baseball star.

The most important change made in the rules last year was that in reference to "dribbling," which term was formerly applied to the motion of the player, but which is now applied to the motion of the ball. A "dribble" is now legal only as long as the ball is kept in motion.

BASSERMAN, HEINRICH. A German theologian, died in August, 1909. He was born at Frankfort-on-the-Main and studied at the universities of Jena, Zurich and Heidelberg. He was appointed in 1880 professor of theology at the University of Heidelberg. He was a profound scholar and his writings were numerous. Among them were *Handbuch der geistlichen Beredsamkeit* (1885); *Akademische Predigten* (1886); *Sine Ira et Studio; Der Entwurf der neuen preussischen Agende beurteilt* (1894).

BASUTOLAND. An inland South African possession of Great Britain, bounded by Cape Colony, the Orange River Colony, and Natal. The area is stated at 10,293 square miles. Estimated population (1907), 351,000. Maseru, the capital and largest town, has about 13,000 inhabitants. There are about 250 schools, with about 12,000 pupils. The chief products are wool, wheat, mealies and Kafir corn. The principal exports are grain, wool, cattle, and horses, and the principal imports, blankets, plows, iron and tinware, clothing and groceries. Imports and exports in 1907 were valued at £236,600 and £248,541 respectively, in 1908, £239,830 and £193,122 respectively. A railway of 16 miles connects Maseru with the Bloemfontein-Modderpoort line at Marseilles Station. Revenue and expenditure in 1907-8 amounted to £116,529 and £126,603 respectively; in 1908-9, £108,637 and £126,921 respectively. Basutoland is administered by a Resident Commissioner (Herbert Cecil Sloley in 1909) under the direction of the High Commissioner for South Africa, the latter possessing the legislative authority, which is exercised by proclamation.

HISTORY. Early in February a deputation of Basuto chiefs visited England to discuss the status of Basutoland if the Union of South Africa went into effect. They were received at the Colonial Office on February 9 and remained in England until the end of February. The mission arose from anxiety as to the future welfare of the Basutos in the event of Union.

The chiefs did not wish the Union at first, but finally seemed to be won over. On March 1 Lord Selbourne visited Maseru where he reviewed 20,000 native horsemen. In a speech which he made at the time he declared that the Basutos could not prevent their country from forming a part of the Union, but that they would in no wise suffer from the change, of which the chief objects would be to secure the country for them, to retain the national council and to suppress the drink evil. The South African constitution provides that the lands of the Basutos shall not be alienated.

BATES, ALFRED ELLIOTT. An American army officer, died October 13, 1909. He was born in Monroe, Michigan, in 1840 and received his early education in the public schools. He graduated from the United States Military Academy in 1865, and after some service in the west, became an instructor in that institution. He was in active service again in 1864 and was a member of the Big Horn Expedition. In 1875 he was appointed to the army staff as paymaster. In this position he served in Texas, Dakota, Washington, New York and San Francisco. From 1897 to 1899 he was military attaché at the Court of St. James, and afterward served in the same position in Paris. In 1899 he was made paymaster-general with the rank of brigadier-general and in 1904 was retired with the rank of major-general. In 1906 he was sent to San Francisco to investigate the accounting of the Red Cross funds and the government funds for the relief of fire sufferers.

BATTLESHIPS. The British all-big-gun-one-calibre battleship *Dreadnought*, completed in 1906, has been succeeded by improved *Dreadnoughts* of so much greater tonnage that the original vessel seems almost a pigmy. The *Dreadnought*, with her 10-12" guns, was so superior to all existing types, the standard of which generally mounted a main battery 4-12" guns, and an intermediate battery of from 12 to 14 6" guns, that the British boast, "The *Dreadnought* has made all previous battleships obsolete," might well be accepted as pardonable pride. Commencing in 1905, an animated discussion has been maintained throughout the naval world as to whether the main battery of a battleship should consist of heavy guns of one calibre, like that of the *Dreadnought*, or of a combination of two calibres, like that of the *Lord Nelson* (4-12"; 10-9.2" guns). The chief arguments of those in favor of one calibre were, and are: concentration of fire; simplicity of fire control, of training, of ammunition supply, of arrangement of magazines; increased speed. Their opponents declared that the Russo-Japanese war clearly demonstrated the value of the gun of medium calibre on account of its rapidity of fire combined with accuracy; to it was due the destruction of the superstructures and the unarmored ends of battleships, with the accompanying loss of life, and the demoralization of the remaining personnel. They also called attention to the great cost of *Dreadnoughts*; that it is not well to put all your eggs in one basket; that docking facilities were lacking. Even to-day, there are many thoughtful people in England who feel sure that a terrible blunder was made in building the *Dreadnought*, as all other nations have been compelled to follow suit, thereby lessening the possibility of any international agreement on the subject

of the reduction of armament. As an anti-torpedo-boat battery, the *Dreadnought* carried 24-3" guns. The increased effective range of the torpedo, greater offensive power of the later large destroyers, and the need of a gun for attacking unarmored ships, have led to the adoption of a heavier gun than the 3" for the anti-torpedo-boat battery. The later British *Dreadnoughts* carry 20-4" guns; while the American *Wyoming* is to carry 21-5" guns. The arrangement of the turrets on the *Dreadnought* has been abandoned in the latest British all-big-gun ships; the American plan of mounting all-great-gun turrets on the centre line has been adopted. The *Orion*, 22,500 tons, will carry 10-12" guns, all on the centre line, three turrets forward of the superstructure, and two aft. Compared with the earlier *Dreadnoughts* (excluding the *Neptune*), two guns have been sacrificed in both ahead and astern fire to secure two more guns on the broadside. The *Neptune*, the eighth and largest of the *Dreadnoughts* yet launched, carries her 10-12" guns in five turrets, three on the centre line, and one on each side, in echelon. All ten guns can be fired on either broadside, whereas her predecessors could only fire eight; the middle turret on the centre line will be raised and placed close forward on the after one, so that its guns can be fired over it, thus giving a stern fire of eight guns, instead of six. For a long time the British looked with suspicion on the American plan of having one turret fire over another. The arrangement of armor on British *Dreadnoughts* is still similar to that on the *Dreadnought*; on the *Vanguard*, *St. Vincent*, and *Collingwood*, the main armor belt was thinned, and spread over a greater area of the hull. The increased displacement of the later *Dreadnoughts* has been used to afford greater protection, a better disposition of the battery, greater speed, and to permit the mounting of a heavier anti-torpedo-boat battery. It looks as if the maximum displacement had not yet been reached; first, we have the *Dreadnought*, of 17,900 tons; then the *Bellerophon*, of 18,600 tons; then the *Vanguard*, of 19,250 tons; then the *Orion*, of 22,500 tons. The American *Wyoming* displaces 26,000 tons; and the British battleship cruiser *Lion*, 26,350 tons. Now a member of the United States House of Representatives proposes the building of a battleship of 30,000 tons. The increased tonnage is obtained chiefly by increasing the length and beam, increase of draft being comparatively small. The *Michigan*, 18,000 tons, has a mean draft of 24 ft. 6 in.; the *North Dakota*, 20,000 tons, 26 ft. 11 in.; the *Wyoming*, 26,000 tons, about 28 ft. 6 in. The *Michigan* is 450 ft. long on the load water line; the *North Dakota*, 510 ft.; the *Wyoming*, 550 ft. The *Michigan* has an extreme breadth at load water line of 80 ft. 2½ in.; the *North Dakota*, 85 ft. 2 in.; the *Wyoming*, 93 ft. 2½ in.

The naval Powers are making immense sacrifices in building *Dreadnoughts*. There are very few docks in the world that will take the latest type; and not many harbors they can safely enter. The cost to Germany will be enormous; the widening and deepening of the Kaiser Wilhelm canal will occupy many years, and will cost about eleven millions sterling; vast sums have already been expended in making Wilhelmshaven into a first class naval port; great sums must be spent in dredging rivers and harbors.



Copyright, 1929, by Enrique Muller

UNITED STATES BATTLESHIP "NORTH DAKOTA"

DREADNOUGHT TYPE OF BATTLESHIPS BUILT, AND BUILDING IN 1909

DREADNOUGHTS—ENGLAND

BATTLESHIPS

Name	Displacement Tons	Length Ft.	Beam Ft.	Draft Ft.	Armament	Armor Belt Max.	Speed Knots	Launched	Months Under Construction	Remarks
Dreadnought.....	17,900	460	82	26.5	10-12 in.: 27-3 in.	11 in.	21.25	Feb. 10, '06		In commission
Bellerophon.....	18,000	480	82	27	10-12 in.: 20-4 in.	11 in.	21.9	July 27, '07	26	Completed Feb. 20, '09
Temeraire.....	18,000	480	82	27	10-12 in.: 20-4 in.	11 in.	21.5	Aug. 24, '07	28	Completed May 15, '09
Superb.....	18,000	480	82	27	10-12 in.: 20-4 in.	11 in.	21	Nov. 7, '07	28	Completed June 9, '09
St. Vincent.....	19,250	500	84	27	10-12 in.: 20-4 in.	11 in.	21	Sept. 10, '08	24	Undergoing trials
Collingwood.....	19,250	500	84	27	10-12 in.: 20-4 in.	11 in.	21	Nov. 7, '08		Undergoing trials
Vanguard.....	19,250	500	84	27	10-12 in.: 20-4 in.	11 in.	22.4	Feb. 22, '09	19	Undergoing trials
Neptune.....	20,250	510	86	27	10-12 in.: 20-4.7 in. (?)	11 in.	21	Sept. 30, '09		To be completed Jan., 1911
Colossus.....	20,250	510	86	27	10-12 in.: (?)					Laid down July, 1909
Hercules.....	20,250	510	86	27	10-12 in.: (?)					Laid down Aug., 1909
Orion.....	20,250	510	86	27	10-12 in.: (?)					Laid down Nov. 28, 1909
Conqueror (?). ..	22,500	600	88							Ordered
Monarch (?). ..		600	88							Ordered
Princess Royal (?). ..		600	88							Ordered

CRUISERS

Indomitable.....	17,250	560	78.5	26	8-12 in.: 16-4 in.	7 in.	27.36	March 16, '07		In commission
Invincible.....	17,250	560	78.5	26	8-12 in.: 16-4 in.	7 in.	28	April 13, '07	35	Completed March 20, '09
Inflectible.....	17,250	560	78.5	26	8-12 in.: 16-4 in.	7 in.	27.25	June 26, '07		In commission
Indefatigable.....	19,000	560	80	26.5	8-12 in.: 20-4 in.	7 in.	28	Oct. 28, '09		To be completed Feb., 1911
Lion.....	26,350	700	86.5		10-12 in.: 7-6 in.	9 in.	28			Laid down Nov. 28, '09
Thunderer.....	26,350	700	86.5		10-12 in.: 7-6 in.	9 in.	28			Ordered

Although the Lord Nelson and the Agamemnon are not *Dreadnoughts*, not being all-big-gun-one-calibre battleships, some critics consider them superior to *Dreadnoughts*.

Lord Nelson.....	16500	410	79.6	27	4-12 in.: 10-9, 2 in.	12 in.	18.9	Sept. 4, '06		In commission, completed Jan. 5, '09
Agamemnon.....	16500	410	79.6	27	4-12 in.: 10-9, 2 in.	12 in.	18.74	June 23, '06	44	In commission

DREADNOUGHTS—GERMANY

BATTLESHIPS

Name	Displacement Tons	Length Ft.	Beam Ft.	Draft Ft.	Armament	Armor Belt Max.	Speed Knots	Launched	Months Under Construction	Remarks
Nassau.....	18,500	431.7	88.9	26.6	12-11 in.; 12-5, 9 in.	11.8 in.	20	Sept. 24, '08	28	Completed 1909
Westfalen.....	18,500	431.7	88.9	26.6	12-11 in.; 12-5, 9 in.	11.8 in.	20	Dec. 12, '08	28	Completed 1909
Rheinland.....	18,500	431.7	88.9	26.6	12-11 in.; 12-5, 9 in.	11.8 in.	19.5	Sept. 20, '09		To be completed in the summer of 1911. Laid down March, 1909 To be completed in autumn of 1915
Posen.....	18,500	431.7	88.9	26.6	12-11 in.; 12-5, 9 in.	11.8 in.	19.5	Sept. 20, '09		
Ost Friesland.....	21,000				12-12 in., 12-6 7 in. (?)		20	Sept. 20, '09		
Thuringen.....	21,000				12-12 in., 12-6 7 in. (?)		20	Sept. 20, '09		
Helgoland.....	21,000				12-12 in., 12-6 7 in. (?)		20	Sept. 20, '09		
Ersatz Frithjof.....	21,000						20			
Ersatz Hildebrand.....	21,000						20			
Ersatz Heimdal.....	21,000						20			

CRUISERS

Von der Tann.....	18,700	560.9	85.1	26.9	12-11 in.; 12-5, 9 in.; 10-3.4 in.	7 in.	25	March 20, '09		Building
G.....	22,000				10-12 in.; (?)		27			Building
H.....	22,000				10-12 in.; (?)					

DREADNOUGHTS—UNITED STATES

BATTLESHIPS

Name	Displacement Tons	Length Ft.	Beam Ft.	Draft Ft.	Armament	Armor Belt Max.	Speed Knots.	Launched	Contract time for building. Months	Remarks
Michigan.....	16,000	430	80 2.5 in.	24.5	8-12 in.; 22-5 in.	11 in.	18.79	May 20, '08	40	Completed 1909
South Carolina.....	16,000	430	80 2.5 in.	24.5	8-12 in.; 22-5 in.	11 in.	18.96	July, 11, '08	41	Completed 1909
Delaware.....	20,000	510	85 2.5 in.	26.11	10-12 in.; 14-5 in.	11 in.	21.6	Feb. 6, '09	36	98.5 per cent. completed Jan. 1, 1910
North Dakota.....	20,000	510	85 2.5 in.	26.11	10-12 in.; 14-5 in.	11 in.	22.25	Nov. 10, '08	34½	98 per cent. completed Jan. 1, 1910
Florida.....	21,825	510	88 2.5 in.	28.5	10-12 in.; 16-5 in.		20.75			40.4 per cent. completed Jan. 1, 1910
Utah.....	21,825	510	88 2.5 in.	28.5	10-12 in.; 16-5 in.		20.75			58.2 per cent. completed Jan. 1, 1910
Wyoming.....	26,000	534	93 2.5 in.	28.5	12-12 in.; 21-5 in.		20.5	Dec. 23, '09	32	6 per cent. completed Jan. 1, 1910
Arkansas.....	26,000	534	93 2.5 in.	28.5	12-12 in.; 21-5 in.		20.5		32	8 per cent. completed Jan. 1, 1910

DREADNOUGHTS—JAPAN

BATTLESHIPS

	19,800	490	84	98	10-13 in.; 10-6 in.; 12-4.7 in.	10-6 in.	20.5	1908	To complete trials, spring 1910
Aki.....	19,350				12-4.7 in.			1907	Completed 1909
Satsuma.....	21,000				12-4.7 in.				To be launched Oct., 1910
Kawachi.....	21,000				12-4.7 in.				To be launched Oct., 1910
Settsu.....					12-4.7 in.				

DREADNOUGHTS—FRANCE

France has no *Dreadnoughts*, but is building 6 battleships of the Lord Nelson class (programme of 1906). They are:

	1918	475	84	37.5	4-13 in.; 12-9.4 in.	10.6 in.	19	1909 1909 Jan. 16, 1909 April 19, 1909 April 30, 1909	All to be completed in 1911
Danton.....									Laid down in 1907
Mirabeau.....									
Voltaire.....									
Diderot.....									
Condorcet.....									
Vergniaud.....									

These later, larger *Dreadnoughts* can be completed more quickly than the smaller battleships of the pre-*Dreadnought* period. The building period has been shortened, in England, to two years.

There is also a tendency toward increasing the launching weight. That of the *Dreadnought* was 6000 tons. A little more than a year later, on July 27, 1907, that of the *Bellerophon* was 7000 tons, about 1000 tons more than that of the *Dreadnought*, although the difference in the displacement of the two ships is only 700 tons. The *Vanguard's* launching weight was, February 22, 1909, 10,250 tons; that of the *São Paulo*, April 19, 1909, 10,400 tons. In the United States, the launching weight of the *North Dakota* was 7000 tons; that of the *Delaicore*, 8500 tons.

The 12" gun has been universally adopted for the main battery of battleships, even by Germany. Each turret contains two guns. The Supreme Council of the French Navy has recommended the triple turret.

DREADNOUGHT CRUISERS. These vessels are all big-gun-one-calibre armored cruisers, able to lie in the line of battle; their great speed fits them for use as scouts, and for the protection of commerce; they will form the "flying wings" of a fleet. England led the way here, again, followed by Germany. The three English *Invincibles* are already in commission; the German *Von der Tann* was launched on March 20, 1909. Admiral Lord Charles Beresford, in election speeches at Portsmouth, during the first part of January, 1910, declared that the *Invincible* is a "complete breakdown," that she has never fired her 12" guns simply because she cannot; that, in case of war, her personnel would be transferred to a ship that could fight. The latest English armored cruiser laid down, the *Lion*, will have the same main battery as the original *Dreadnought*, with a very much heavier anti-torpedo-boat battery; she will have 6½ knots more speed; but the maximum thickness of her armor belt will be 2" less.

BAUSMAN, BENJAMIN. Pastor in the American German Reformed Church, died May 8, 1909. He was born in 1824, graduated at Marshall College in 1851, and from the Theological Seminary, Mercersburg, Pa., in 1852, and became pastor at Reading, Pa., in 1863. In 1873 he founded St. Paul's Reformed Church in Reading, and remained its pastor until his death. Dr. Bausman was prominent in the councils of the church, and in 1894 was president of the General Synod. He wrote, among other works, *Sinai and Zion* (1860); *Wayside Gleanings in Europe* (1878); *Bible Characters* (1893); *Precept and Practice* (1901). He also edited several periodicals connected with his denomination.

BAUXITE. See MINERAL PRODUCTION.

BECHUANALAND PROTECTORATE. A

British possession in South Africa, lying between the Malapo and Zambezi rivers and extending from the Transvaal to German Southwest Africa. Area, about 275,000 square miles. Population, about 134,000, of whom 1100 are whites. Serawe, the chief town of the Baman-gwato tribe, has about 17,000 inhabitants. The natives engage in cattle-raising and to some extent in agriculture. Exports are principally live-stock, hides, horns, etc. The railway and

DREADNOUGHTS—RUSSIA

BATTLESHIPS

Name	Displacement Tons	Length Ft.	Beam Ft.	Draft Ft.	Armament	Armor Belt Max.	Speed Knots	Launched	Remarks
Petropavlovsk... Poltava..... Sevastopol..... Gangut.....	23,000	590	87	27	10-12 in.; 16-4.7 in.	11 in.	21		Laid down June 16, 1909

DREADNOUGHTS—ITALY

BATTLESHIPS

Dante Alighieri... Leonardo da Vinci... Michel Angelo.... Galileo-Galilei....	22,000 23,000				12-12 in.; 18-4.7 in. 8-14 in.; 27-4.7 in.		22 22		Laid down 1909 Begun in Oct., '09 Begun in Oct., '09 Begun in Oct., '09
----------------------------------------------------------------------------------------	------------------	--	--	--	-----------------------------------------------	--	----------	--	----------------------------------------------------------------------------------

DREADNOUGHTS—BRAZIL

BATTLESHIPS

Minas Geraes... São Paulo..... Rio de Janeiro....	19,250	500	83	25	12-12 in.; 22-4.7 in.	9 in.	21	Sept. 10, '08 April 19, '09	Completed 1909α Ordered in Dec., '09
---------------------------------------------------------	--------	-----	----	----	-----------------------	-------	----	--------------------------------	-----------------------------------------

α Minas Geraes was to be turned over to the Brazilian government on January 6, 1910.

telegraph from Cape Colony to Rhodesia pass through the Protectorate. There are 12 post-offices. Revenue and expenditure in 1907-8 amounted to £31,563 and £75,851 respectively; in 1908-9 £42,050 and £75,800 respectively. The Protectorate is administered by a Resident Commissioner (Lt. Col. F. W. Panzera in 1909) under the direction of the High Commissioner for South Africa, the latter possessing the legislative power, which is exercised by proclamation. The natives continue under the immediate rule of the tribal chiefs.

BEER. See LIQUORS, FERMENTED and DISTILLED.

BEERNAERT, AUGUST MARIE FRANÇOIS. A Belgian publicist who shared with M. d'Estournelles de Constant (q. v) the Nobel prize for peace in 1909. He was born in Ostend in 1829 and from 1874 has been active in Belgian politics. He has taken particular interest in the question of international arbitration and was a delegate of the Belgian government at the peace conference at The Hague. He was also a member of the permanent court of international arbitration. The reforms in the Belgian Congo are largely due to his efforts and in this connection he circulated a largely signed protest vindicating the administration of the colony under the present Belgian government. M. Beernaert has been for more than forty years the head of the powerful Catholic party in the Belgian Parliament. It was announced that he had decided to consecrate the \$25,000 which was awarded him as the Nobel prize for peace to the reception for Parliamentary strangers at Brussels in 1910, and the surplus to the propaganda of pacifism.

BEET SUGAR. See SUGAR.

BELGIAN CONGO. See CONGO, BELGIAN.

BELGIUM. A constitutional monarchy of western Europe, capital, Brussels.

AREA AND POPULATION. Area, 11,373 square miles. Population (1900), 6,693,548; estimated December 31, 1907, 7,317,561; December 31, 1908, 7,386,444. The number of marriages in 1906 was 58,388; births (living), 186,271; deaths, 118,884. The immigration and emigration in 1907 were 38,921 and 32,350 respectively, against 37,382 and 32,858 in 1906. According to the estimate of December 31, 1907, Brussels had, with the suburbs, 629,917 inhabitants; Antwerp, 310,903; Liège, 173,939; Ghent, 164,117.

EDUCATION. Primary education is compulsory. Education is largely under clerical control, which is a great source of grievance to Liberals and Socialists. The state maintains a graded educational system. For 1907 public schools were reported as follows: Infant, 2837, with 264,845 pupils; primary, 7222, with 883,518 pupils; middle-class, male and female, 88 and 40 respectively, with 17,942 and 8045 pupils respectively; primary normal, 54, with 4913 pupils; middle-class normal, 4, with 196 pupils; adult schools, 4218, with 208,656 pupils; royal colleges and athénées, 35, with 7693 students. Besides the public schools there are many elementary and secondary schools, mostly controlled by the Church, and commercial industrial schools, etc.

Of Belgium's four universities, Ghent and Liège are state, Brussels free, and Louvain church; with various attached special schools, they have more than 6000 students. Illiteracy is decreasing. In 1880, 33.2 per cent. of the population above seven years could neither read nor write; in 1900, 22.1 per cent. In 1907, 9.06 per cent. of the military recruits were illiterate. Roman Catholicism is the state religion, but full religious liberty prevails, and grants are made from the national treasury to all denominations.

AGRICULTURE. Of the total area, 1,736,174

hectares are under cultivation and 521,495 under forests. The following table shows the acreage for 1906 and yield for 1905 and 1906 of the following crops:

	Acres, 1906	Quintals, 1905	Quintals, 1906
Oats	261,224	4,903,985	6,564,840
Rye	252,909	5,422,904	5,224,696
Wheat	160,073	3,374,970	3,528,088
Barley (winter).....	29,082	897,126	807,385
Beets (sugar).....	55,751	21,013,336	17,489,228
Beets (other).....	61,307	35,224,114	34,155,029
Potatoes	144,881	15,556,119	24,127,000
Tobacco	2,909	75,506	68,044
Hops	2,397	51,172	84,948

The live-stock numbered, December 31, 1906, 1,779,678 cattle, 244,893 horses, and 1,148,083 swine. The annual value of the total forest products is estimated at 21,653,482 francs. The number of people engaged in agriculture was given (1900) at 449,902.

MINING AND METALS. The output of the coal mines is given as follows: 1906, 23,569,000 tons; 1907, 23,830,289; 1908, 23,635,174; first six months of 1909, 11,559,745 tons, against 11,813,648 tons for the corresponding period in 1908. The number of miners employed was 139,394 in 1906; 141,966 in 1907; 143,947 in 1908. The number of coal mines in operation in 1906 was 122. General recognition of the fact that the present Belgian coal district is being worked out has given added significance to the discovery of deposits in the Campine district (provinces of Limburg and Antwerp). The first shaft has been sunk by a French company, at Beeringen. Iron ore (reported, 1907, 316,250 tons; 1906, 232,570), zinc, lead, and copper are mined. Out of 41 blast furnaces, only 33 were in active operation in March, 1909. The furnace products in 1906 were as follows:

	Tons	Francs
Pig iron.....	1,363,075	97,409,000
Manufactured iron.....	358,250	53,303,000
Steel ingots	1,395,140	133,110,000
Steel rails, etc.....	1,164,745	169,046,000
Zinc		98,616,000
Lead		10,207,000
Silver from lead.....		21,081,000

There were 1680 quarries in operation in 1906, employing 37,927 workmen. The value of the output of the year was 62,274,570 francs.

OTHER INDUSTRIES. Belgium is essentially a manufacturing country, and for its food supplies is largely dependent upon foreign sources. Besides the furnace products, the leading manufactures are glass, textiles, lace, sugar, flour, and starch, and distillery and brewery products. In 1906 there were 99 sugar mills, with an output of 277,814 tons of raw sugar; 24 sugar refineries, output 124,515 tons; 137 distilleries, output 63,650 hectolitres of alcohol at 50° G. L. The cotton industry in 1908 employed 1,162,041 spindles. The lace makers number about 45,500. The fishing industry is reported to be declining. In 1906 the value of the catch was 6,592,087 francs.

COMMERCE. The special and transit trade for three successive years is given in thousands of francs as follows:

	1906	1907	1908
Imports	\$3,454,000	\$3,773,600	\$3,327,400
Exports	2,793,800	2,848,100	2,506,400
Transit	2,268,800	2,348,000	2,021,000

The figures for the first nine months of 1909 show an improvement of 7.4 per cent. for imports and 2.5 per cent. for exports over the corresponding period in 1908, the imports for consumption amounting to 2,517,804,650 francs, and exports of domestic products, 1,875,298,000 francs. The principal articles of special trade for 1908 were valued as follows:

Exports

Machinery and vehicles	206,700,000
Cereals and flour	199,400,000
Iron and steel	197,300,000
Skins	123,300,000
Woolens	82,600,000
Flax	82,100,000
Crude oil	81,300,000
Spun flax	77,700,000
Zinc	74,100,000
Seeds	70,700,000
Glassware	68,900,000
Chemicals	57,700,000
Cotton textiles	54,900,000
Resins and bitumens	48,600,000
Manure	46,600,000
Stone	45,600,000
Sugar	38,200,000
Animal fats	37,500,000
Dyes and colors	36,900,000
Woolen yarns	36,100,000
Drugs	35,900,000
Live-stock	32,200,000
Diamonds, cut	23,900,000

Imports

Cereals and flour	558,500,000
Resins and bitumens	164,200,000
Wool, raw	163,600,000
Timber	663,200,000
Skins	138,900,000
Seeds	120,400,000
Chemicals	108,300,000
Crude oil	92,500,000
Iron and steel	83,600,000
Machinery and vehicles	76,600,000
Dyes and colors	70,600,000
Rubber	67,300,000
Coffee	65,200,000
Flax, raw	62,000,000
Live-stock	55,600,000
Cotton, raw	51,500,000
Drugs	48,800,000
Animal fats	41,800,000
Cotton textiles	33,700,000
Dairy products and margarine	33,000,000
Wines	28,400,000
Diamonds	23,300,000

The principal countries of origin and destination of the special trade for 1908 (exclusive of precious metals) and the value of their trade in francs are given as follows:

Countries.	Imports.	Exports.
France	516,700,000	464,800,000
Germany	449,900,000	680,300,000
Great Britain.....	375,800,000	334,300,000
United States.....	341,500,000	73,000,000
Argentina	311,000,000	59,600,000
Russia	203,000,000	38,200,000
Rumania	114,300,000	11,800,000
British India.....	96,190,000	28,500,000
Australia	73,600,000	16,400,000
Chile	68,600,000	30,500,000
Belgian Congo.....	53,300,000	16,300,000

COMMUNICATIONS. The total length of railways at the end of 1908 was 2888 miles, including branch lines and private lines rented

by the state; railway operated by the state in 1906 2540 miles, by companies 332 miles. Passengers carried by state railways in 1906, 152,237,941; by company lines, 17,002,017; gross receipts (state), 259,336,992 francs and (companies) 32,422,669 francs; expenses (state) 166,150,884 and (companies) 13,904,778. The first cost of state railways at the end of 1906 amounted to 2,335,731,336 francs; net receipts, 2,379,949,967; financial charges, 2,074,525,984. Length of public roads (1907), 6000 miles; navigable rivers and canals, 1360 miles. Number of post-offices (1908), 1485; postal receipts for the year, 35,939,747 francs; expenses, 18,695,113. Length of telegraph lines in 1908, 4369 miles; number of offices, 1561; messages carried, 7,700,000. The merchant marine, January 1, 1909, had 88 steamers of 152,325 tons and 4 sailing vessels of 3038 tons. During 1908 10,256 vessels of 13,409,331 tons entered and 10,268 of 13,441,093 tons cleared at the various ports.

FINANCE. The unit of value is the franc, worth 19.3 cents. In 1906 the revenue and expenditure were 675,688,000 francs and 772,366,000 francs respectively. For 1909 the estimated revenue was 619,200,944 francs and 618,895,733 francs respectively. The principal items of revenue were: Railways, 264,200,000 francs; excise, 78,486,100; customs, 53,198,400; registration tax, etc., 36,000,000; property taxes, 28,632,000; personal taxes, 25,024,000; succession tax, 25,500,000; posts, telegraphs, and telephones, 36,823,000. The chief estimates of expenditure were: Public debt, 178,057,751 francs; railways, ports, and telegraphs, 218,971,628; public instruction, 33,789,377; army, 58,172,506; justice, 28,900,200. The total public debt, January 1, 1909, amounted to 3,436,917,851 francs.

BANKS. The National Bank, instituted in 1850, is the only bank of issue. Its capital and reserve aggregate 83,814,000 francs. On December 23, 1908, its cash on hand amounted to 160,607,000 francs, and its note circulation, 760,236,000 francs. At the end of 1906 the state savings banks had 2,419,710 deposits, aggregating 812,092,923 francs.

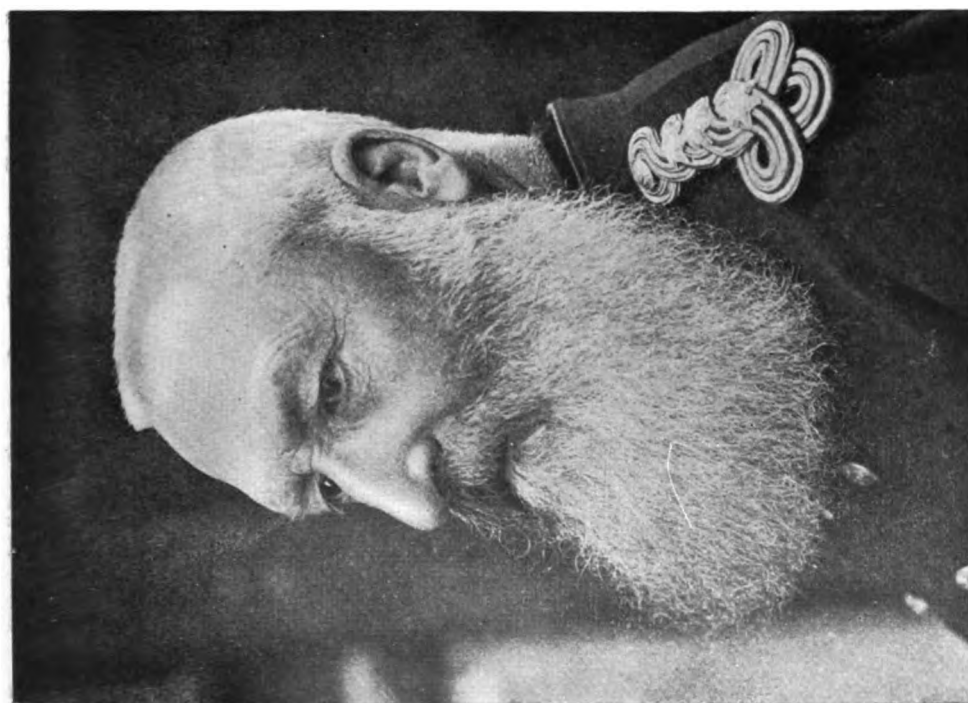
GOVERNMENT. The executive power is vested in the King. He is assisted by a ministry of ten members, appointed by himself and responsible to the lower house of the Parliament, which consists of the Senate (111 members, chosen partly directly and partly indirectly for eight years) and the Chamber of Representatives (166 members, chosen by direct vote for four years). The Ministry in 1909 was composed as follows: Premier, Minister of the Interior and of Agriculture, F. Schollaert; Justice, L. de Lantsheere; Foreign Affairs, J. Davignon; Finance, J. Liebaert; Sciences and Arts, Baron Descamps; Industry and Labor, A. Hubert; Public Works, A. Delbeke; Railways, Posts, and Telegraphs, G. Helleputte; War, Lieutenant-General J. Hellebaut; Colonies, J. Renkin.

ARMY. Unlike most European countries Belgium does not require a large standing army, as its neutrality is satisfactorily guaranteed. Accordingly voluntary enlistment prevails, though if necessary recourse can be had by conscription. Thus enlistment is for a period of eight years in the ranks and four in the reserve, and was a part of the scheme of reorganization adopted in 1902. But the results

were not satisfactory and the criticism of the army, which was manifest in 1908, aroused further discussion in 1909. (See following paragraph under *History*.) The Belgian army consisted of 14 regiments of infantry each of 4 battalions of 4 companies and a depot, 1 regiment of grenadiers, 1 regiment of carabiniers (4 active battalions and 2 reserve), and 3 regiments of chasseurs-à-pied. The cavalry consists of 2 regiments of chasseurs, 2 of guides, and 4 of lancers, each of 4 squadrons and 1 reserve; and the artillery is made up of 4 field and 4 fortress regiments. The engineers are organized as a regiment of 3 battalions, with a reserve battalion and 5 special technical companies. In addition to a gendarmerie of over 1700 men there was a Civic or National Guard organized on a military basis, but under the Minister of the Interior, numbering approximately 45,000 actives and 100,000 non-actives, which would be available in war for lines of communication, etc. In 1909 the entire military establishment amounted to 3424 officers and 43,061 men, including some 2000 civilian employees. These figures were considered far from representing the actual strength of the army, which had been gradually diminishing, and some regiments were reduced below an effective training basis.

HISTORY

MILITARY REORGANIZATION. The law of 1902, though not changing the militia fundamentally, had made some important alterations, the chief of which was the reduction of the term of active service in the infantry to twenty months. As a result of this the peace effective decreased. In order to supplement it an attempt was made to encourage voluntary enlistment among those who had not been drafted under the existing system of drawing by lot. To attract volunteers high pay was offered and a promise was held out of engagement in public administration after their term expired. This was in line with the popular demand that no one should be forced to be a soldier. The law provided that in cantons where voluntary enlistment was sufficient drawing by lot might be suppressed, but owing to the general popular dislike of military service voluntary enlistment became more meagre than before and the gap caused by the reduction of the term of service was not filled. Thus at the beginning of the session the Minister of War declared that instead of the effective of 42,000 there were at present but 30,000 in the barracks, and the following plan was proposed in order to increase the defensive army: General military service (one son to each family and allowing substitution between brothers), but a further reduction of the term. This, as far as it went, conformed to the wishes of the Progressists and Socialists, who contended for the greater reduction of the term and the inclusion of all as liable for service, instead of the invidious method of choosing by lot. The Minister of War, however, did not go far enough to meet the demands of the extremists and it was thought he intended to keep the term of eighteen months. The friends of the volunteer system argued that it had not had a fair trial owing to the opposition of the military authorities. The government majority was weak and the Ministry was divided on the question, so no law was proposed, but a Commission of In-



LEOPOLD II
King of the Belgians, died 1909



ALBERT I
King of the Belgians, crowned 1909

Courtesy of the "Review of Reviews"

quiry was voted by the Chamber at the request of the government. The Commission reported on April 30 that the shortage on a peace footing was 4802 and on a war footing 18,844. The supporters of the present system argued as before that this shortage was due to the inefficient application of the law and to the hostility of the military officers. The reformers, on the other hand, were concerned less with the matter of shortage than with the adoption of measures looking to universal compulsory service for a shorter term.

The Ministry finally agreed on a compromise project which was submitted to the Chamber by the Premier, M. Schollaert. Drawing by lot was suppressed and service was obligatory on all of an age that qualified them for service in the militia, but subject to numerous exceptions, including the exemption of the clergy, missionaries and members of religious societies that imposed vows. The government was to have the right to reduce the term of active service so far as necessary to prevent the peace effective from exceeding a strength of 42,000. These proposals were coldly received. Some raised the objection that according to the constitution the law must fix each year the precise figure of the annual levy. The number 42,000 was a larger peace effective than before and encountered the objections of the anti-militarists. The Socialists and Radicals wishing an "armed nation" on the Swiss model, with only a brief term of active service, were also opposed, believing that in the absence of any real military necessity, the actual purpose of such an establishment was to deal with internal difficulties, labor troubles and the like. Amendments were offered which virtually nullified the government's measure. These provided that in accordance with the constitution the number of the annual levy must be fixed each year by law, that drawing by lot should be restored if the contingent fell below a minimum figure, and that it was not obligatory to keep the number on a peace footing at 42,000. Such was the situation when Parliament adjourned for the summer vacation. It met on October 22, three weeks in advance of the usual date for the beginning of the autumn session, to debate the question. Clauses fixing the peace strength at 42,800 and providing for personal service (one son in a family) were enacted, and finally on December 1 passed the Chamber by 104 to 49. It was then debated in the Senate.

A special credit of nearly \$2000 for the fortifications of Antwerp was voted by the Chamber in June.

CONGO QUESTION. After the completion of the annexation in November, 1908, the most important matter that came up was the voting of the colonial budget which revealed a considerable excess of charges. The system of forced labor, which had been the subject of so much criticism in recent years, was continued and a decree of the government issued a short time before placed the number to be recruited in 1909 at 2500 for the building of the Great Lakes Railway. The Ministry replied to an interpellation on this subject, that it was impossible at present to give up the forced conscription of laborers. In fact a larger number was needed this year than before. So the Ministry promised to encourage free labor and voluntary employment, but could make no definite state-

ment as to when forced labor could be dispensed with. The United States and Great Britain formally refused to recognize and approve the transfer of Congo sovereignty to Belgium until radical reforms were made. In certain quarters there was a tendency in Belgium to make light of these protests as unlikely to be seriously pressed. One of the deputies, who published his views on the subject, declared there had been significant instances recently of the power of accomplished facts as, for example, in the Far East, and that there was no occasion for alarm at this temporary refusal to recognize the transfer. He applauded the dilatory course of his government's diplomacy in the matter, the interchange of diplomatic notes having proceeded very slowly, several months in fact having passed before Belgium replied to the British Note. The only danger was that of arousing in Great Britain a desire for conquest in giving her an excuse to seize African territory. Early in September Prince Albert was reported to have been very unfavorably impressed by the condition of the natives in the course of his visit to the Congo. The Colonial Minister proposed the Congo Budget on December 28 and at the same time submitted the government's plans for reform. See CONGO, paragraphs on *History*.

PARLIAMENT. Among the measures that passed or were under discussion during the year the following may be mentioned: The Chamber passed a law extending to merchants and their employees the jurisdiction of the councils of *prudhommes* which had hitherto applied only to industrials, and giving women the right to vote for and to sit on these councils. An important law much discussed during the session was that limiting the hours of labor in the collieries. It was supported by the Socialists who demanded an eight-hour day, but the government fixed the working period at nine hours. It was an important departure in principle from the theory of economic non-interference in accordance with the Manchester doctrine. It passed its second reading by a large majority in the Chamber, but owing to the rejection of the Senate's amendments without discussion, a sharp issue was raised between the two bodies. The question of school canteens for the distribution of soup and clothing to children in public schools agitated the Clericals. Although it was a private charity it was subsidized by the communal governments. The Catholics complained that the charity was not extended to the private schools that were attended by the Catholic children. In some communes the canteens were organized by the local government and the question was whether they should be suppressed on the principle that the public funds could not be applied to the aid of public schools unless they were extended also to the free or private schools as that would discriminate against the religious beliefs of one class in the community. The law concerning *jus sanguinis*, which had been adopted by the Chamber in its previous session, passed the Senate. By this the child of a Belgian was to be a Belgian, and the child of a foreigner, a foreigner, but to remove uncertainties, a child born in Belgium of a father who was either born in Belgium, or had lived there at least ten years, was to be considered a Belgian from his twenty-second year, and a child born in Belgium of a foreign father was to be considered a Belgian if he had lived in Belgium from his sixteenth to his twenty-second

year. The effect of this was to naturalize a good many foreigners. Measures concerning workmen's retiring pensions and contributions to mutual aid societies were also under consideration in the spring. During the autumn there was considerable criticism of the King and the Ministry in connection with the former's private sale of furniture and paintings. The Minister of Sciences and Arts issued an order for placing at the King's disposal for this purpose certain rooms in the State Museum. It was part of the policy long pursued by Leopold of disposing of his wealth so far as possible in his own life-time instead of leaving it to his heirs. It was argued that the furniture and paintings of the royal palaces were not his private property, but pertained to the civil list. An interpellation on the subject was made in the Chamber, but without avail.

The King died on December 18, and was succeeded by his son Albert, who took the oath of office on December 23. See LEOPOLD II. and ALBERT I.

BENT, SIR THOMAS. An Australian public official, died September 17, 1909. He was born at Penrith, New South Wales in 1838. He settled in Victoria in 1849, and for some time engaged in market gardening. In 1873 he was elected to the Legislative Assembly and was successively Commissioner of Public Works, Commissioner for Railroads and Vice-President of the Board of Land and Works. In 1904 he was elected Premier, which office he held until his death. He was at the same time Treasurer and Minister of Railways. He was knighted in 1908. In 1907 he visited England with a view to arranging a cheap transportation for immigrants to Victoria, and while there attracted much attention by a speech protesting against England's welcome to General Botha.

BENZOATE OF SODA. See FOOD AND NUTRITION.

BERI-BERI. See TROPICAL MEDICINE.

BERKELEY, CAL. See ELECTORAL REFORM.

BERMUDA. A group of over 300 small islands, islets, and rocks, lying east of North Carolina and 677 miles from New York, and constituting a British colony. Of the islands only about 20 are inhabited. The largest islands are St. George, Bermuda, Somerset, and Ireland. The total area is about 19 square miles. The estimated number of inhabitants, of whom over two-thirds are colored, was 19,588 in 1906. The capital and chief town is Hamilton, on Bermuda Island, with 2246 inhabitants in 1901. About one-third of the area is under cultivation. The chief products are lily bulbs and vegetables, especially onions. Imports and exports in 1906 were valued at £398,176 and £121,295 respectively; in 1907, £410,596 and £130,621 respectively. Imports of food supplies come principally from the United States, which receives most of the exports. Export values in 1907 included: Onions, £62,364; potatoes, £28,236; lily bulbs, £9593; arrowroot, £470. The total tonnage entered and cleared in 1907 was 829,376 tons (698,082 British). The colony has cable communication with Halifax and with Turks Island and Jamaica. There are 19 post-offices. Revenue and expenditure in 1907 amounted to £67,538 and £59,172, respectively; the public debt at the end of that year stood at £46,000. The colony is an important naval station, and is a favorite winter resort for Americans. It is administered by a governor (who

is commander-in-chief of the military forces). There are an executive council, a legislative council, and a representative house of assembly (36 members). The Governor in 1909 was Lieut.-Gen. Walter Kitchener.

BETHEA, SOLOMON HICKS. An American jurist, died August 3, 1909. He was born in Dixon, Ill., in 1852, and graduated from the University of Michigan in 1872. From 1877 to 1898 he practiced law at Dixon, Ill. In 1899 he was appointed United States District Attorney at Chicago, and in 1905 he was made Judge of the Northern District of Illinois. Judge Bethea was a conspicuous figure in the politics of Illinois.

BETHMANN-HOLLWEG, THEOBALD VON. A German statesman, from July 14, 1909, Chancellor of the German Empire, succeeding Prince von Bülow. He was born at Eberswalde in 1856, and studied at the universities of Strassburg, Leipzig and Berlin. He has been a friend and adviser of the Emperor since early manhood. Von Bethmann early entered public life, and before he was 30 years of age was made Governor of Ober-Barnim. In 1896 he was made Provincial President of Potsdam, and in 1899 was President of the government of Bromberg. He was appointed President of the province of Brandenburg in 1901, and in 1905 was made Minister of the Interior; while occupying the latter position he also served as Vice-Chancellor under Prince von Bülow. Dr. von Bethmann has been a mild Conservative in politics, but as a Minister of the Crown he has always held that in administrative functions he must be non-partisan. For the circumstances of his appointment, see the article GERMANY, under History.

BIBLE SOCIETY, AMERICAN. A religious organization, founded in 1816 for encouraging the wider circulation of the Holy Scriptures without note or comment. The Society issued in the year ending March 31, 1909, 2,153,028 volumes, including Bibles, Testaments, Gospels, or other portions of the Scriptures in eighty-eight languages. Of this number 823,700 volumes were issued in the United States in the English language. A notable increase of Bible reading in China is indicated by sales of 408,000 volumes in the first six months of 1909, a total never approached in previous half years. From the Bible House in New York Scriptures go out in sixty-five languages; in some thirty languages of the immigrants there is a marked increase of the Scriptures required. In thirteen languages in Asia, Africa, and South America translations or revisions of the Scriptures are now in progress. Revision of the Spanish *Version Moderna* by a strong committee has been carried through the four gospels and circulated for criticism. The first reference Bible ever published in Chinese has been issued by the Society during the year at Shanghai. Nearly \$500,000 from the legacy of the late J. B. Cutter, Esq., has been received by the Society, and it has been notified also of a bequest of \$750,000 by the will of the late John S. Kennedy (q. v.). Both of these large legacies are without restriction and available for any purpose which the Board of Managers may approve. The Society is collecting money for an endowment fund of \$1,000,000 proposed by Mrs. Russell Sage, to which she conditionally offered \$500,000. To the seven general agencies for distribution existing in the United States, there were added during the year,

the Middle Agency, whose Secretary resided in Cincinnati, with his field in the States of Kentucky, Ohio, Mississippi and Alabama; and the Atlantic Agency, centering at Philadelphia, with Pennsylvania, New Jersey and Delaware for its field. Theophilus A. Brouwer, Esq., of New York City was elected president of the Society in May to succeed Daniel Coit Gilman, LL. D., who died October 13, 1908. The secretaries are: Rev. John Fox, D. D.; Rev. William I. Haven; Rev. Henry Otis Dwight, LL. D.; and the treasurer is William L. Foulke.

BIBLICAL CRITICISM. The last half decade in Biblical criticism is characterized by comprehensiveness rather than by intensity, and by the disposition to employ increasingly the apparatus furnished by the ancillary sciences. It has produced no epoch-making work and evolved no startling hypothesis. The period has been one of perhaps more sober study and patient research, tending on one hand to review positions and to fortify conclusions previously reached, on the other to apply the processes more thoroughly; more numerous have been the attempts also to popularize what has been already gained. The most spectacular work, as so often in the past, has been done with the aid of archaeology, particularly in Egypt and Palestine.

The great Bible dictionaries of Hastings and Cheyne belong to the preceding five years, but the former has been supplemented by the *Hastings's Dictionary of Christ and the Gospels* (2 vols., Edinburgh and New York, 1906-8). In the way of helps to the text the notable achievement is the completion of the *Brown-Driver-Briggs Hebrew Lexicon* (1906). No like work has been done for the New Testament, but Professor Adolph Deissmann, who at the end of the nineteenth century created an epoch in the philology of Biblical Greek, has been collecting materials and has begun a dictionary of Greek of that age which shall place historically the Septuagint and the Greek New Testament in the development of the Greek tongue. In Hebrew grammar nothing startling has been done, but for the New Testament Professor J. H. Moulton, in *Grammar of New Testament Greek*, vol. i., *Prolegomena* (Edinburgh, 1906) has begun the restatement of the principles of the languages in accord with what is required by the papyri and ostraca of Egypt and the restudy of European and Asiatic remains. Deissmann's *Philology of the Greek Bible* (London, 1908) is of note here. Also R. Helbing's *Grammatik der Septuaginta* (Göttingen, 1907).

In textual criticism the work done has been largely upon the versions. But not to be overlooked as important is the issue of Kittel's *Hebrew Bible* (Leipsic, 1906), of the first volume of the *Trinitarian Society's Hebrew Bible* (London, 1908,) under the care of Dr. Ginsburg, and of A. B. Ehrlich's *Randglossen zur hebräischen Bibel* (Leipsic, 1908). The papal commission for the much needed revision of the Vulgate is at work, and the gathering of a wonderfully complete apparatus is already in large part accomplished. The monumental quarto issue of the Cambridge edition of the Septuagint has reached part 2 of vol. i. (1909). Within this period falls the completion of the reissue of the *West Saxon Gospels* (4 vols., Boston, 1904-06). H. Thompson has edited the Coptic (Sahidic) *Version of Certain Books of the Old Testament from a Papyrus in the British*

Museum (1908); W. C. Oesterly, a *Transcript of the Turin Ms. of the Twelve Prophets* (New York, 1908); W. Streitberg has done good work in editing *Die gothische Bibel* (part 1, Heidelberg, 1908), and the fifth part of *Old Latin Biblical Texts* has issued from the Clarendon Press (1908). Useful handbooks to the progress of work on these lines are W. O. E. Oesterly's *Our Bible Text*. Some recently discovered *Documents* (London, 1909), C. Henslow's *The Vulgate* (1909), and J. Drummond's *Transmission of the Text of the New Testament* (1909), while C. R. Gregory has issued *Die griechischen Handschriften des Neuen Testaments* (Leipsic, 1908), and has completed his *Textkritik des Neuen Testaments* (vol. iii., 1909). For Americans interested in textual criticism a fact of importance is the possession in Detroit of the "Freer Manuscripts" of the fifth or early sixth century, containing the Septuagint of Deuteronomy and Joshua, of the Psalms, and the Greek of the Gospels. None of these has as yet been fully studied or published.

For the higher criticism as bearing upon the Old Testament, archaeology has been effective. A general survey of this field is furnished by H. J. Dukinfield Ashley's *Prehistoric Archaeology and the Old Testament* (Edinburgh, 1908); cf. R. Kittel, *Studien zur Hebräischen Archäologie* (Leipsic, 1908); and S. R. Driver, *Modern Research as Illustrating the Bible* (Oxford, 1909). A discovery, the bearing of which is not yet fully worked out, is the finding of the name of Israel's god (in the form Ya-u) in tablets from the time of Hammurabi's father (c. 2260 B.C.) and also in some from the Kassite period 1893-1207 B.C.). While the defenders of the Mosaic origin of the Pentateuch have attempted to restate their case (J. Orr, *The Problem of the Old Testament*, London, 1906; H. M. Wiener, *Essays in Pentateuchal Criticism*, Oberlin, 1910), the critical case is regarded by its advocates as so assured that further study of the Pentateuchal "sources" is proceeding with confidence (A. R. Gordon's *Early Tradition of Genesis*, Edinburgh, 1907), and concessions are being made to the higher criticism in very conservative circles. Matured study of the code of Hammurabi has led to the conclusion that Pentateuchal legislation shows few traces of direct influence from this great code, and that what connection there is the effect of general contact with Babylonian culture. For a later period in Hebrew history publication of Babylonian business documents of Ezra's time casts light on the life of Jews in Babylonia in that period (cf. A. T. Clay, *Light on the Old Testament from Babel*, Philadelphia, 1907; L. W. King, *Egypt and Western Asia in the Light of Recent Discoveries*, London, 1908). From Egypt the discovery of Aramaic documents belonging to the period 471-407 B.C. furnishes information about the Jewish temple at Elephantine dating back to about 525 B.C., and incidentally helps in dating Joel definitely not as one of the earlier prophets but as belonging near the Greek period, as the advanced critics have maintained (Sayce and Cowley, *Aramaic Papyri Discovered at Assuan*, London, 1906; E. Sachau, *Drei aramäische Papyri*, Berlin, 1907; A. van Hoonacker, *De arameesche Papyrus-oorkonden van Elephantine* 1909; L. Belletti, *An Independent Examination of the Assuan and Elephantine Aramaic Papyri*, London, 1909). Equally interesting is

the determination of the other and later temple of the Jews in Egypt at Leontopolis (at Tel al-Yehudiyeh, twenty miles south from Cairo); cf. J. G. Duncan, *Exploration of Egypt and the Old Testament*, (New York, 1909). For the criticism of passages in which the history and topography of Jerusalem are of help, three works have recently appeared unusual in the weight of the authorities back of them. They are G. A. Smith's *Jerusalem* (London, 1908); Selah Merrill's *Ancient Jerusalem* (New York, 1908); and C. R. Conder's *City of Jerusalem* (London, 1909). The excavations at Gezer and Taanach illustrate the history of Palestine in the entire Biblical age, and among the conclusions warranted is the absence of human sacrifice in the earliest period of Hebrew history (R. A. S. Macalister, *Bible Side Lights from the Mound of Gezer*, London, 1906; H. Vincent, *Canaan d'après l'exploration recente*, Paris, 1907). A notable contribution in the way of historic side-light is J. A. Montgomery's *The Samaritans* (Philadelphia, 1907). Dr. Kent is continuing his work of presenting conclusions in Old Testament criticism in his *Students' Old Testament* (vols. i-iv., New York, 1904-09).

In the province of Hebrew religion the disposition to study the subject in the light of comparative research is very marked, as is illustrated by: W. E. Orchard, *The Evolution of the Old Testament Religion* (London, 1908); W. O. E. Oesterly, *The Evolution of the Messianic Idea* (London, 1908); and E. Sellin, *Die alttestamentliche Religion im Rahmen der andern Altorientalischen* (Leipsic, 1909). Modern methods are exemplified further in J. H. Kaplan's *Psychology of Prophecy* (Philadelphia, 1908), and W. H. Bennett's *Religion of the Post-exilic Prophets* (Edinburgh, 1908).

In the New Testament most of the work done has been the restatement of the results of textual and literary criticism. The important issues are C. R. Gregory's *Canon and Text of the New Testament* (New York, 1907), and *Einleitung in das Neue Testament* (Leipsic, 1909); J. Beet, *The New Testament, its Authorship, Date, and Worth* (London, 1909); the appearance in English of T. Zahn's monumental *Introduction to the New Testament* (3 vols., Edinburgh, 1909), and of W. Wrede's *Origin of the New Testament* (London, 1909); the Abbé Jaquier has completed his conservative statement in his *Histoire des livres du Nouveau Testament* (4 vols., Paris, 1904-09); a vigorous but sober work is A. S. Peake's *Critical Introduction to the New Testament* (London, 1909). The storm centres are still the Gospels. The disposition still to maintain the priority of Mark's Gospel is manifest, and the existence of the sources asserted by the critical school is even more widely accepted. As in the case of the Pentateuch, attempts are being made to advance knowledge of these sources, and to reconstruct the documents behind the present Gospels (A. Harnack, *Lukas der Arzt*, Leipsic, 1906, and *Reden Jesu*, 1907; J. Wellhausen, *Das Evangelium Marci*, Berlin, 1909). In the work of Harnack first named above and in *Apostelgeschichte* (1907) incidentally the Lucan authorship of the third Gospel and of Acts is supported. Over the problem of the Fourth Gospel no great change has come. Conservative criticism defends the apostolicity, M. Lepine, *L'Origine du quatrième evangile* (Paris, 1907), which makes genuine all writings associated

with the name of John; and T. Zahn in his commentary on the Gospel (Leipsic, 1908), while the critical pushes the attack upon the genuineness and historicity (E. F. Scott, *The Fourth Gospel, Its Purpose and Theology*, Edinburgh, 1906; F. C. Burkitt, *Gospel History and its Transmission*, 1906; J. Wellhausen, *Das Evangelium Johannis*, Berlin, 1908; and B. W. Bacon, *The Fourth Gospel in Research and Debate*, New York), reviews the latest discussions on this subject and acquaints the reader with the very latest phases of discussion. The attack of the Dutch school upon all the Pauline epistles finds no echo and scholarship in general refuses to accept this extreme position. A useful review of results in exegesis is furnished in P. Fiebig's *Aufgaben der neutestamentlichen Forschung in der Gegenwart* (Strasbourg, 1909).

The study of the Bible as literature continues, as exemplified by such volumes as A. Wünsche's *Die Schönheit der Bibel* (Leipsic, 1906), and C. F. G. Heinrich's *Der litterarische Charakter der neutestamentlichen Schriften* (Leipsic, 1908).

BICYCLING (as a sport). See CYCLING.

BILLIARDS AND POOL. The principal events in the billiard history of 1909 were all held in the Madison Square Concert Hall, New York City, and included two world's championship tournaments at 18.1 and two tournaments at 18.2. In the first 18.1 contest (January 26) George F. Slosson defeated George Sutton by 500 points to 328, scoring a high run of 56 and a grand average of 8.62. Sutton then challenged Slosson to another match which was played on June 2 and which Sutton won by the score of 500 to 201. Sutton made a high run of 70 and had an average of 12.82. The first 18.2 championship tournament was held March 22 to April 2, twenty-one games being played. Ora C. Morningstar won the match with George Sutton as second, but in July resigned the championship. A match held in Chicago followed at 18.2 between William F. Hoppe and George Sutton, the latter winning after three nights' play. The second world's championship tournament at 18.2 took place November 22-30 and resulted in a triple tie between Calvin Demarest, George Sutton and H. P. Cline. In the play-off Demarest finished first, Sutton second and Cline third. Sutton scored the highest run of the tournament (235) and also made the highest average (19.57) for 7 games. The showing made by Demarest, who had entered the professional ranks for the first time in the 18.2 tournament held in January, surprised the experts. This player was the holder of the National Amateur Championship at 14.2. An amateur championship tournament at 18.2 was held at the Liederkrantz Club, New York, in April, which was won by H. A. Wright. C. F. Conklin received second place after a play-off of a triple tie. The three cushion championship changed hands five times during the year, finally resting with Alfred De Oro. De Oro made the highest run (11) against Thomas Hueston. The pool championship was won from John Kling at Kansas City in November by Thomas Hueston, the score being 800 to 653.

BINARY MIXTURES. See CHEMISTRY.

BIOLOGICAL CHEMISTRY. See CHEMISTRY.

BIOLOGICAL STATIONS. On the Atlantic coast of the United States, marine stations

were maintained during the summer of 1909 at South Harpswell, Me., under the control of Tufts College; the Marine Biological Laboratory and the laboratory of the United States Bureau of Fisheries at Woods Hole, Mass., the Station for Experimental Evolution and the laboratory of the Brooklyn Institute at Cold Spring Harbor, N. Y.; the United States Bureau of Fisheries laboratory at Beaufort, N. C.; the Harvard University station in Bermuda; and the laboratory of the Carnegie Institution at Dry Tortugas, Florida. At the Marine Laboratory at Woods Hole and at the laboratory of the Brooklyn Institute courses of instruction were offered. At the other laboratories mentioned, the work was entirely that of research. In the Middle and Western States a number of college and universities conducted summer laboratories; the University of Michigan on land owned by the University near the Straits of Mackinaw, offering courses in field zoölogy and botany, with especial reference to ecological technique; the State University, the State College, and the State Normal Schools of Washington, a laboratory on Friday Harbor, on San Juan Island, in Puget Sound; the University of North Dakota, a laboratory on the shores of Devil's Lake, a large body of blackish water presenting many interesting ecological problems; a mountain laboratory at Folland 9000 feet above sea level, conducted by the University of Colorado; and a station under the control of the University of Minnesota at Port Renfrew, Vancouver Island, were among those announced for the year.

Professor W. E. Ritter, Director of the San Diego Station at La Jolla, Cal., has resigned his position as Professor of Zoölogy in the University of California, to devote his entire time to the work of the laboratory.

The United States Bureau of Fisheries has established a biological station at Fairport, Iowa, for the study of the fresh water mussel. See ZoöLOGY.

The Dove Marine Laboratory, in connection with Armstrong College, was formally opened on December 29, 1908, by the Duke of Northumberland. The County Council of Northumberland have contributed £100 per annum for its support.

BIOLOGY. In evolutionary discussions, there was the same lack of agreement among various workers as to the value of the several factors that characterized the literature of 1908. Complete agreement is perhaps to be looked for as little here as in theology or politics, but personal animosities are unfortunately too frequently shown in the discussions. Thus Poulton, who is a thoroughgoing believer in the all-sufficiency of natural selection, criticises with great severity the claims of the Mendelians, or as he calls them, the "Batesonians." His own position is based largely on phenomena of insect coloration, where he argues that colors are in many cases certainly protective, and could only have reached their present condition through natural selection of minute variations. Mutations are, he thinks, very rare, and have played little part in the course of evolution. For this position, however, Poulton offers little direct evidence.

Bateson, on the other hand, while expressing himself less enthusiastically in a new edition of his work on Mendelism than he did in the first edition, published in 1902, still maintains

that the study of genetics, illuminated as it is by the law of Mendel, is the only way along which progress is to be made in the study of evolutionary processes. The work of the biometricians he considers of no value in this connection, while in regard to adaptations arising through the selection of small variations, he shows that this would be difficult to accomplish in any non-Lamarckian evolution, and also claims that the severity of the struggle for existence has been overestimated. "Natural Selection is stern, but she has tolerant moods."

An important book, from the standpoint of the student of genetics, is this new edition of Bateson's *Mendel's Principles of Heredity*, in part a reprint of Mendel's original papers, and in part summarizing the work of Mendelians in recent years. Bateson reviews the evidence for the inheritance of sex as a Mendelian phenomenon, and concludes that most observed phenomena can be explained on the assumption that the female is heterozygous, with femaleness dominant, while the male is a homozygous recessive. Wilson and others, from cytological studies, have concluded that the male is heterozygous, and the female homozygous. Bateson suggests that the discrepancy is due to the fact that animals are not all alike in this respect. It is true that Bateson's results are derived from study of vertebrates and lepidopterous insects, while Wilson's study of the chromosomes are on other groups of insects. The accessory chromosome has not been found in the Lepidoptera. In either case it is clear that sex is determined by gametic differentiation, and not by external conditions following fertilization.

It has been shown for plants by de Vries that many apparently homogeneous species of plants are really made up of distinct races, and that no amount of selection will permanently transform one of these races into another. Jennings showed that the same condition holds for protozoa. From a culture of *Paramecium* he isolated eight races differing from one another in size. Within the limits of a race occur considerable size variations. If, however, we breed from the largest and from the smallest of any one race, we find that the average size of the descendants in the two cases is the same. Size differences in the race are due to different conditions of nutrition, and no permanent improvement in size can follow any amount of selection. If we breed from the largest individuals of the culture, we gradually eliminate the smaller races, but no amount of breeding will increase the size of the animals beyond the average of the largest race. These results are important, in view of the supposed ability of natural selection to modify indefinitely a species.

To explain cases where organs, in themselves indifferent, are apparently affected by natural selection, Darwin supposed that these vary because "correlated" with organs that are useful, but the nature of this correlation was not clear. It is now known that many organs of the body produce internal secretions, or "hormones," which affect the character of other organs, and Parker now suggests that one organ may be correlated with another because affected by hormones produced by it. If natural selection causes a change in the hormone-producing organ, the hormones will probably vary, with a

consequent variation in the character of the correlated organ.

Evolutionists in recent years are much less inclined to deny the possibility of the inheritance of acquired characters than they were twenty years ago, though there have been as yet no definite experiments proving that it actually does occur. Lutz reports that in breeding experiments on pomace flies he has kept the insects for forty-two generations in small glass tubes, where the use of the wings was impossible. In spite of the disuse of these organs for this length of time, there was no indication of a decrease in size. On the other hand Eigenmann, in an elaborate paper on "Cave Vertebrates of America," published by the Carnegie Institution, reaches the conclusion that the bleached condition of the cave fauna, and the degenerate condition of the eye, are both to be explained through the transmission of functional modification.

Coulter, from the standpoint of the botanist, declares there is no evidence that natural selection has had anything to do with the origin of species. He cites especially the formation of thorns, which Weismann considers excellent examples of protective adaptations and shows that they are not protective because they do not appear when the plant is young and needs them most, and because experiment has shown that they arise merely as a response to poor nutritive conditions. Ritter and Ruthven, in studies of Ascidians and snakes respectively, declare that there is no evidence for a necessary relation between the environmental conditions of the animals, and their characters.

Osborn, replying to Morgan's statement that the philosophic zoölogist has chosen undirected variations as furnishing the material for natural selection, challenges the zoölogists to produce a single instance in which adaptive characters are being accumulated through the selection of undirected variations. He maintains that the philosophic palæontologist finds the material for natural selection in the ensemble of an enormous number of characters, each of which is a unit, pursuing its independent history and moving in direct lines of which the palæontologist has proof, but totally fails to understand.

Reighard, as a result of experiments on coral reef fishes, concludes that the brilliant color of the fishes is not in any sense for warning purposes, because the fish are eaten by other fish if caught, but ordinarily are protected by their habit of living in the reef, among the coral heads. The animals have no need of protective colors, being sufficiently protected by the corals; they have no need for aggressive coloration, because they can obtain their invertebrate food even if brilliantly colored; and the colors are not warning as stated above. Under these conditions, the coloration of the animal would follow whatever direction the forces at work in the organism would lead it, and in the case of the coral reef fish, it has led to brilliant coloration. Reighard proposes to call this "Immunity Coloration," since it develops because the animal is immune to the various causes which have produced elsewhere other types of coloration.

Thayer argues that there is no true mimicry, but that brilliant colors, as in the skunk, various insects, etc., are color devices which enable the animal to blend with the background, and thus be protected. Apparent mimicry of one

animal by another is simply that since the two live on identical backgrounds, they must vary in the same direction if they are to be protectively colored.

An address given before the International Zoölogical Congress in 1907 by J. Loeb, has now been published in an expanded form under the title, "Die Chemische Entwicklungserregung des tierischen Eies." The formation of a fertilization membrane which is essential to the development of the egg is brought about by a "lysin" which comes into the egg with the sperm. Loeb elsewhere states that artificial parthenogenesis may be produced by any agency which tends to produce hæmolysis, as fatty acids, ether, alcohol, chloroform, solanin, digitalin, or even the blood of mammals.

BIRD PROTECTION. See ORNITHOLOGY.

BIRDSALL, WILLIAM W. An American educator, died March 17, 1909. He was born at Richmond, Ind., in 1844, and graduated at Earlham College in 1873. From 1885 to 1893 he was instructor in mathematics at the Friends' Central School in Philadelphia. In 1898 he was elected president of Swarthmore College, serving until 1902. In the latter year he became principal of the Girls' High School in Philadelphia.

BIRTH RATE. See VITAL STATISTICS.

BISHOP, ROBERT R. An American jurist, died October 7, 1909. He was born in 1834, and graduated from Harvard Law School in 1857. Afterwards he began the practice of law in Boston. He served in both branches of the State Legislature, and for three years, 1879 to 1882, was President of the State Senate. In 1882 he was Republican candidate for Governor, but was defeated after a close contest by Benjamin F. Butler. Most of his legal work was concerned with railway litigation. In 1888 he was appointed an associate justice, and served continuously up to within several months of his death.

BISMARCK ARCHIPELAGO. A German protectorate northeast of German New Guinea, to which it is attached administratively. Including the German Solomon Islands (q. v.), the estimated area is 22,000 square miles, and the estimated population 250,000. The white inhabitants in 1908 numbered 463 (322 German). There are Wesleyan and Catholic missions. The total cultivated area in 1908 was 11,987 hectares. The chief products are copra, cotton, rubber, and coffee. In 1907 the imports amounted to 2,589,000 marks, and the exports 1,690,000 marks (copra, 1,521,971 marks).

BLACKWELL, HENRY B. An American publicist and editor, died September 8, 1909. He was born in Bristol, England, in 1825. In 1832 his parents emigrated to the United States, settling in 1838, in Cincinnati. He began his career as an office boy, but finally became traveling partner in a hardware firm. In 1853 he took an active part in the Free Soil movement. In 1855 he married Lucy Stone, a prominent Abolitionist. In 1869, with Julia Ward Howe, William Lloyd Garrison, George William Curtis and others, he took part in organizing the American Woman Suffrage Association. For twenty years he was secretary of this society. In 1872, he, with his wife, assumed the editorship of the *Woman's Journal*, started in 1870 by Mary A. Livermore. This position he held

until his death. Mr. Blackwell was one of the most aggressive advocates of woman suffrage in the United States.

BLANNERHASSETT, SIR ROWLAND. A British publicist and educator, died March 22, 1909. He was born in County Kerry, Ireland, in 1839. He was educated at Christ Church, Oxford, and studied also at Louvain, Munich and Berlin. In 1865 he was chosen Liberal member of Parliament from Galway, and from 1880 to 1885 represented his native county. He was an inspector of schools from 1890 to 1897; and president of Queens College, Cork, 1897 to 1905. Sir Rowland Blennerhassett wrote much in the reviews, chiefly on foreign topics. He was an ardent opponent of the Pan-Germanic movement. His publication of an interview with Kaiser Wilhelm II. in the *Daily Telegraph* in 1908 was one of the most sensational political episodes of that year.

BOILERS. The total number of boiler explosions in 1909, according to the magazine *Locomotive*, published by the Hartford Steam Boiler Inspection and Insurance Co., was 550, the greatest number reported in any one year. There were 470 in 1908, 471 in 1907, 431 in 1906, and 450 in 1905. But while the number of explosions was greater in 1909 than ever before, the number of deaths was less than it has been for any year since 1904. The number of persons killed by boiler explosions in 1908 was 227, against 281 in 1908, 300 in 1907, 235 in 1906, 383 in 1905, and 220 in 1904; and the number of persons injured (but not killed) in 1909 was 422, against 531 in 1908, 420 in 1907, 467 in 1906, 585 in 1905, and 394 in 1904.

During the year 1909 there were many very serious explosions, but there was none in which the loss of life approached the appalling total that characterized the great explosion at Brockton, Mass., in 1905, or the one on the U. S. gunboat *Bennington*, in the same year. The worst boiler explosion of 1909, so far as loss of life and injury to person was concerned, was the one that occurred in Denver, Colo., on June 15. By this explosion six persons were killed, and six others were more or less seriously injured. This explosion resulted in an immediate damage to property of \$80,000.

BOLIVIA. An interior republic of South America. The capital is Sucre. The ten departments and colonial territory comprising the republic have an estimated area of 473,560 square miles and an estimated population (1908) of 2,267,935. The census of 1900 showed 1,744,568 inhabitants, and the estimate of 1906, 1,953,916. In 1900 50.9 per cent. of the inhabitants were Indians, 26.7 per cent. mestizos, and 12.7 per cent. whites. Estimated population of the larger towns (1906): La Paz, 67,235; Cochabamba, 24,512; Potosí, 23,450; Sucre, 23,416; Oruro, 20,670; Santa Cruz, 20,535; Tarija, 7817; Trinidad, 4810. Primary instruction is free and nominally compulsory. Some provisions are made for secondary and higher education. The state religion and that prevailing among the people is Roman Catholicism.

PRODUCTION AND COMMERCE. Bolivia depends mainly upon her mineral wealth, which includes numerous metals and is rich, abundant, and widely distributed. Next in importance is agriculture, but both this industry and mining, in proportion to the capabilities of the country, are little developed, partly on account of the difficul-

ties of transportation. Among vegetable products, the most important commercially is rubber, although in 1908 the output showed a marked decline; other products are cacao, cinchona, and coffee. Wheat, corn, barley, and potatoes are cultivated, mainly for local consumption. The leading mineral products are tin, silver, and copper. The annual gold production amounts to about \$349,000. In 1908 the production of tin was greater than in 1907, but, owing to a fall in price, the value was less. Bolivian tin assays 60 per cent. pure. The tin and bismuth mines and the copper mines of Corocoro are among the richest in the world, but development, especially of the copper and bismuth, has not yet attained large proportions. Foreign commerce has been as follows, in bolivianos:

	1906	1907	1908
Imports	31,997,000	34,562,000	40,807,857
Exports	50,757,000	45,902,000	43,786,198

The principal imports are cotton and woolen textiles, provisions, cattle, machinery and hardware, and wines and spirits. The chief export is tin barilla, which in 1907 amounted to 27,677,781 kilos, valued at 29,892,003 bolivianos; in 1903, 29,938,283 kilos, valued at 29,501,021 bolivianos. The mining sections from which the 1908 export came were: Potosí, 18,139,148 kilos; Oruro, 9,620,025; La Paz, 2,008,932; Cochabamba, 170,177. Next to tin ranks silver, with an export value in 1907 of 6,483,464 bolivianos, and in 1908, 7,007,037 bolivianos. Other exports in 1907 and 1908 were, in bolivianos, respectively: Copper, 2,562,692 and 1,233,195; bismuth, 936,093 and 306,522; gold, 9730 and 51,500; rubber, 8,841,380 and 4,905,493. Of the imports in 1908 Germany furnished approximately 25 per cent., the United States, 20 per cent., Great Britain, 16 per cent., Chile, 9 per cent., and France, less than 7 per cent. The principal imports from the United States are railway materials and cotton goods. On account of the construction of an Argentine railway to Quiaca on the Bolivian frontier, imports by way of Argentina showed a notable increase in 1908.

COMMUNICATIONS. Difficulties in transportation and travel constitute one of the chief obstacles to the material development of the Republic. In 1909 the trunk railway lines had a length of about 400 miles, affording direct rail communication from Lake Titicaca, via Oruro, to Antofagasta, on the Chilean coast. Branch lines were under construction from Oruro to Cochabamba and Potosí, and new lines had been located from Potosí to Tupiza and from La Paz to Puerto Pando. Preliminary work has begun on a line from Brazil to the Beni region, about 300 miles; it will open up a country rich in rubber and cabinet woods. From Arica (Chile) to La Paz (337 miles), a railway is under construction, of which 186 miles will be in Bolivian territory; branches will connect with the Tacora and with Corocoro. There is communication by rail from La Paz to Guaqui (59 miles), thence by steamboat on Lake Titicaca to Puno, Peru (180 miles), and from that point by rail to Mollendo, on the Peruvian coast (324 miles). River communication by steamboat is open from Villa Bella to Pará (Brazil), on the Amazon (2516 miles), and from Puerto Suarez to Montevideo and

Buenos Ayres (about 1740 miles), by way of the Paraguay, Paraná, and Plata rivers. The aggregate length of Bolivian navigable rivers is estimated at 12,000 miles. There are over 2300 miles of wagon roads, about 1800 miles of which connect the various industrial centres.

For 1908 the number of post-offices is reported as 192, and of postal employees, 277. The telegraph system comprised 2986 miles, of which 2088 miles were owned by the government.

FINANCE. Complete and final figures of national finance are not available. The estimated revenue and expenditure for 1908 were: 16,025,378 bolivianos and 16,618,515 bolivianos respectively, for 1909.

Besides treasury bonds amounting to 2,500,000 bolivianos, the internal debt stood at 4,346,529 bolivianos in 1907, when there was no recognized external debt. Early in 1909 it was announced that the Bolivian government had contracted a loan of \$2,500,000 with J. P. Morgan and Company, of New York.

On September 14, 1906, the Congress enacted a law providing for the adoption of the gold standard, which became the standard of the country by the President's promulgation of December 31, 1908. The monetary unit is made the boliviano, worth 38.93 cents (that is, 12.50 bolivianos to the pound sterling). Under the silver standard, the value of the boliviano fluctuated; in July, 1908, it was about 39.3 cents, and in October, 1907, about 49.9 cents.

ARMY. Compulsory military service is required of males from the twentieth to the fiftieth year, but this has never been vigorously enforced, though various reforms in connection with a reorganization of the army in 1907 were put under way. There were in 1909 five infantry battalions, a regiment of cavalry, and a mountain artillery regiment, with an extra cavalry and an extra artillery regiment in process of formation, making a standing army of about 3000 men, though reserves, territorial guards and other forces make possible a war strength estimated from 80,000 to 177,800 men upon mobilization. The Mauser rifle model of 1898 is used and there were being added in 1909, modern shielded field guns from the French Creusot works.

GOVERNMENT. The executive authority is vested in a president, who is elected for a term of four years, and is assisted by a cabinet of five members. The legislative power devolves upon a congress of two houses, the Senate (16 members) and the Chamber of Deputies (72 members). The departments are administered by prefects, appointed by the President. The President is Eliodoro Villazón (elected May 2, 1909).

HISTORY. On January 13 the arbitration treaty pending between the United States and Bolivia was ratified by the United States Senate. On July 10, after the announcement of the award in Peru's favor by the President of Argentina, Figueroa Alcorta, in the boundary dispute between Bolivia and Argentina, both the Argentine and Peruvian legations were mobbed, but the Bolivian government promised satisfaction for these acts of violence and declared martial law. After the announcement of the government that it would not accept the award the disorders ceased (July 14). At the end of July it was announced that Bolivia and Peru had agreed to open direct negotiations with each other for the adjustment of the dispute. See

ARGENTINA and ARBITRATION, INTERNATIONAL. In August President Ismail Montes retired and was succeeded by Señor Villazon on August 12. President Montes was opposed to the Argentina boundary award and Señor Villazon believed in accepting it, although it was unfavorable to Bolivia.

BOLL WEEVIL. See COTTON.

BOOTS AND SHOES. The depression and uncertainty in this industry which prevailed in 1908 were not as marked in 1909. At the close of the former year the agitation for free hides was plainly in evidence and during 1909 the tariff (q. v.) figured largely in the boot and shoe industry. At a meeting of the Boot & Shoe Manufacturers' Association, held in New York on June 11, a free hide campaign was put under way and organized work for the cause was done during the tariff discussions. The bill when passed contained a free hides proviso and the first cargo of hides imported free of duty arrived from South America and was entered at the port of Boston, August 6. The tariff law also reduced the duties on imported shoes from 25 per cent. to 15 per cent. ad valorem, and the new rates went into effect on October 1. An industrial dispute of long standing between the Boot and Shoe Workers' Union at Brockton, Mass., and the W. L. Douglas Company, which was particularly serious in 1908, was settled in October, 1909, and the latter began to put in operation at Brockton its manufacturing plants which had been closed or moved away on account of difficulties with organized labor. In New England the boot and shoe industry showed desirable improvement over 1908, and Haverhill and Brockton exceeded all previous years in the amount of their shipments. The shoe shipments from Boston, by no means the greatest on record, showed a substantial gain over 1908. Despite the tariff reduction at the end of the year there did not seem to be any prospect of cheaper leather and it was evident that a general increase in the price of boots and shoes would be agreed upon in the coming year.

SHOE SHIPMENTS FROM BOSTON

1904.....	4,756,649	cases
1905.....	5,058,795	"
1906.....	5,082,578	"
1907.....	4,730,191	"
1908.....	3,698,818	"
1909	4,175,837	"

The shoes shipped from Boston are estimated at 75 per cent. of the output of New England and 50 per cent. of the production of the United States.

The distribution of American boots and shoes covers a wide range of countries. Tropical and subtropical countries offer the largest market for this class of manufactures exported from the United States. Cuba stands at the head of the list, fully 35 per cent. of the year's exports of boots and shoes having been sent to that republic, compared with 13 per cent. to the United Kingdom, 10 per cent. to Canada, 9½ per cent. to Mexico, 8 per cent. to other West Indies and Bermuda, nearly 7 per cent. to Central America, about 3 per cent. to Germany, and about 2 per cent. each to France and the Philippine Islands.

In addition to the exports of American boots and shoes to foreign countries there were sent to Alaska in the 12 months of 1909 103,882 pairs, valued at \$257,645; to Hawaii, 165,684

pairs, valued at \$291,647; and to Porto Rico, 659,284 pairs, valued at \$716,715. The number of pairs sent to the Philippines (which, however, are included in the statement of exports to foreign countries, above recorded) was 191,398 pairs, valued at \$375,861, making the total shipments to the non-contiguous territories of the United States 1,120,248 pairs, valued at \$1,641,868.

In its contributions to the world's requirements of boots and shoes the United States has made rapid progress, especially in recent years. In 1879 the quantity exported was but 364,333 pairs; in 1889, 584,347 pairs; in 1899, 2,664,370 pairs; and in 1909, 6,773,934 pairs, the largest number on record. Meantime the value of exports increased from \$417,758 in 1879 to \$642,065 in 1889, \$3,668,435 in 1899, and \$11,443,225 in the year 1909, which, however, was slightly less than in 1907, when 6½ million pairs were exported. These figures relate only to boots and shoes of leather, and do not include those of india rubber, of which over 3,000,000 pairs were exported in 1909.

This growth of exportations, from 364,000 pairs in 1879 to 6,750,000 in 1909, has brought the United States to the head of the list of boot and shoe exporting nations of the world, if measured by value of the exports, or second in the list, if measured by the number of pairs exported. The principal boot and shoe exporting countries are Germany, Spain, France, the United States and the United Kingdom, and the exports from the United States exceed in value those of any other country, though in number of pairs exported the United Kingdom still exceeds the United States. In the calendar year 1893 the number of pairs of boots and shoes exported from the United States was but 588,003, valued at \$726,210, and those from the United Kingdom, 8,316,588, valued at \$8,259,580. In 1896 the total exportation of American boots and shoes for the first time exceeded one million pairs, being 1,141,033 pairs, against 8,940,216 pairs from the United Kingdom. In the calendar year 1909, the quantity exported from the United States was 6,773,934 pairs, valued at \$11,443,225 and from the United Kingdom, 10,089,960 pairs, valued at \$11,170,768. The values of boot and shoe exportations from other leading exporters were, in 1908, the latest available year, from Germany, \$3,648,000; France, \$2,057,000; and Spain, \$1,456,000.

The following table shows the number of pairs and value of boots and shoes exported from the United States and the United Kingdom, respectively, at quinquennial periods from 1893 to 1909. It will be noted that the growth in exportations from the United States has been over 1000 per cent. and in those from the United Kingdom but about 35 per cent.; also that the average value per pair of the boots and shoes exported, including those of all classes and for children as well as for adults, was, in 1909, \$1.69 for those from the United States, and \$1.11 for those from the United Kingdom.

United Kingdom		
Calendar Year	Pairs	Value
1893	8,316,588	\$ 8,259,580
1896	7,667,040	7,270,215
1903	9,286,296	8,980,542
1908	9,170,364	10,140,589
1909	10,089,960	11,170,768

United States		
Calendar Year	Pairs	Value
1893	588,003	\$ 726,210
1896	1,391,220	1,944,429
1903	4,579,164	7,244,726
1908	5,967,793	10,031,227
1909	6,773,934	11,443,225

BORNEO. An East Indian island, having an estimated area of 293,500 square miles and an estimated population of 1,680,000. The island belongs partly to Great Britain and partly (about two-thirds) to the Netherlands. See **BRITISH NORTH BORNEO; BRUNEI; SARAWAK; AND DUTCH EAST INDIES.**

BOSNIA AND HERZEGOVINA. Formerly Turkish provinces, lying west of Serbia and south of Croatia and Slavonia; from 1878 to 1908 occupied and administered by Austria-Hungary; annexed to Austria-Hungary, by proclamation of the Emperor-King, September 5, 1908. Area, 19,702 square miles. Population (1908), 1,828,379, about one-third Mohammedans and somewhat more than one-third Oriental Orthodox. The capital and largest town is Sarajevo, with over 41,500 inhabitants. Primary instruction is free, but not compulsory. In 1907 there were 379 primary schools, 940 lower Mohammedan schools, five gymnasia, one realschule, 11 advanced schools for girls, and a number of institutions for technical and industrial instruction. Agriculture, although in a low state of development, is the principal occupation of the people. Tobacco is a leading crop, and corn, wheat, barley, rye, millet, buckwheat, potatoes, sugar beets, flax, hemp and fruits are cultivated. The raising of live-stock is important. There is a considerable output of minerals, including coal, iron, salt, copper, manganese, chromium, and mercury. Coal production in 1907 amounted to 621,178 tons, iron ore 150,684 tons, manganese 7000 tons; the production of raw iron was 48,945 tons, valued at 3,298,947 kronen (1 kronen = 20.3 cents), wrought iron 24,233 tons (4,882,990 kronen), cast-iron goods 5072 tons (985,002 kronen). The output of salt in 1907 was 21,148 tons, valued at 2,326,269 kronen. Manufacturing is not highly developed, but there are various factories for sugar, chemicals, wood products, matches, etc. Bosnia and Herzegovina are included in the Austro-Hungarian census territory. The principal imports are cotton textiles, cereals, flour, clothing, iron manufactures and machinery, sugar, and beverages. The leading exports include cereals and flour, vegetables and fruits, live-stock and skins, iron and chemicals. In 1907 the estimated imports from Austria-Hungary and foreign countries were valued at 114,492,195 kronen; the exports, 112,100,703 kronen. In 1908 the imports and exports were valued at 121,686,325 kronen and 108,951,274 kronen, respectively. The length of railways reported in operation in 1909 was 384 miles. Post-offices in 1908 numbered 137, and telegraph offices 164, with 1931 miles of line and 4824 miles of wire. The estimated revenue and expenditure for 1908 amounted to 66,487,959 kronen and 66,482,018 kronen, respectively; for 1909, 71,320,483 and 71,299,013, respectively. Bosnia and Herzegovina are administered by the Austro-Hungarian minister of finance (Baron Stephan Burian de Rajecz in 1909). For history, see **AUSTRIA-HUNGARY.**

BOSTON. See MASSACHUSETTS.

BOSTON PUBLIC LIBRARY. A public institution which embraces the library system of Boston, Mass. It was founded in 1854. The number of volumes in the library on December 31, 1909, was nearly 1,000,000. The total circulation for 1909 for home use was 1,647,846, of which 297,567 volumes were taken from the central library, and 1,124,456 from the branches and stations. The library had in 1909 about 30 branches throughout the city. The librarian is Horace G. Wadlin.

BOTANICAL SOCIETY OF AMERICA.

See BOTANY.

BOTANY. One of the events of 1909 of great importance to botanists was the celebration of the one-hundredth anniversary of the birth of Charles Darwin, and the fiftieth anniversary of the publication of his *Origin of Species*. This dual event was observed by scientific societies throughout the world, and a formal Darwin centenary celebration was held at Cambridge University, England, on June 22, 1909, which was attended by 248 official delegates representing universities, societies, and other scientific bodies in 28 countries of the world. The sixteenth annual meeting of the Botanical Society of America was held at Boston, December 26, 1909, to January 1, 1910, in affiliation with the American Association for the Advancement of Science. The Society of Plant Pathologists held its meeting at the same time. A new botanical laboratory was formally opened in the University College, London, on December 17, 1909. Sir Daniel Morris, well-known for his work in economic botany, retired from the position of Commissioner of Agriculture for the British West Indies and Francis Watts was appointed his successor. Dr. G. Karsten was appointed professor of botany in the University of Halle, in succession to the late Dr. F. Nolle. Dr. Carl Corens has been chosen successor to Dr. W. Zopf, deceased, at Münster. Dr. H. Molisch succeeded Dr. J. Wiesner as director of the plant physiological laboratory at Vienna University. James Britten, editor of the *Journal of Botany*, retired after 40 years' service. Dr. E. Ch. Hansen, well-known for his work on yeasts and fermentation, and Prof. J. Barbosa Rodrigues, director of the botanic garden at Rio Janeiro, died during the year.

PLANT BREEDING. Among some of the recent investigations on economic lines that show the applicability of the Mendelian theory to plant breeding may be mentioned those of DeLoach and Balls on cottons, the latter author showing 21 unit characters in cotton plants. Sutton, in crosses with turnips and other species of *Brassica*, shows Mendelian behavior of the unit characters, fleshy roots, and curled leaves. Nilsson-Ehle shows practically all the supposed mutants of wheat, oats, and other cereals split in Mendelian fashion. East found that flint and dent corns differ in a number of correlated characters and these combinations are maintained when bred with sweet corn. Emerson shows that in beans there are two distinct units for mottling, one typical Mendelian, the other only evident in the heterozygote state. Bauer thinks the great number of fluctuating variations in garden nasturtiums is due to Mendelian splitting of minor unit characters. The matter of non-splitting hybrids has been considered by Lock, Burbank, and others, and its importance should be rigidly investigated. Dr. Drbshire has

examined the starch grains of peas in reference to those found in hybrids, and Miss Wheldale has given an account of the behavior of floral pigments in hybrids. Shull discusses the pure line method of corn breeding, while Collins maintains that broad breeding in corn will give the best results. The present status of plant breeding with alfalfa, cotton, tobacco, cereals, fruits, for disease resistance, etc., is well summarized in the fifth Annual Report of the American Breeders' Association. The annual meeting of this Association was held at Columbia, Missouri, January 6-8, 1909.

PLANT PHYSIOLOGY. A large number of studies on the vital activities and processes of plants were published during 1909. The question of light perception by plants has been a subject of controversy, the perceptive power of certain epidermal cells being affirmed and denied. Bosc has contended that impulse travels through the fibrovascular bundles of plants, but many investigators hold that the power of transmission of excitation is a function possessed by all tissues where there is continuity of protoplasm. Weisner finds that finely divided leaves favor assimilation by the plant by increasing leaf surface and lowering temperature. The method by which the transpiration column in the plant is maintained is still in dispute. Dixon offers additional evidence against the so-called vital theory of the ascent of sap. Bergen has shown that plants growing in humid atmospheres acquire a greater capacity for transpiration than normal, and Smith in studies in the Tropics found a relationship between the temperature of leaves, their color, and transpiration. Young red leaves have the highest internal temperature and also the most rapid transpiration.

The studies on the constitution of chlorophyll are being continued by Stahl, Marchlewski, Hausmann, and others. Willstätter has recently shown that magnesium is a constant constituent of chlorophyll and that starch formation is in some way associated with the presence of magnesium. It seems well established that plants under certain conditions can derive their carbon from cultures in which they are grown and that formaldehyde gas in small quantities can be utilized by the leaves of plants. Euler claims that oxalic acid is an oxidation product of the plant and not an intermediate product of photosynthesis. Parkin has shown that in snowdrop leaves sucrose precedes hexoses in photosynthesis and not the converse. Palladin claims dextrose to be the initial product of carbon assimilation and that it is the parent material from which all aromatic compounds are formed.

The effect of temperature and other physical agencies on various vital functions has been investigated. Becquerel found that seed of wheat, mustard, and alfalfa would withstand drying, sealed in a vacuum, kept for 3 weeks at the temperature of liquid air and 77 hours in liquid hydrogen at -253° C., without losing their power of germination. Maksimov found mistletoe, pine needles, and spiraea buds to continue respiration at -20° C. Starch conversion in twigs of mulberry was favored at temperatures of 60 to 70° C. and ceased at 80° . Cloudy weather has been found to retard assimilation of wheat plants, four or five times as much carbon dioxide being assimilated during bright weather, with a corresponding increase in

starch. The estimated amount of starch formed in a field of wheat on a cloudy day was 7 kg. per hectare as compared with 33 kg. on a bright one. Reed has shown that potash salts are necessary for starch formation by plants, phosphorus is closely connected with carbohydrate transformation, calcium is needed for the activity of chlorophyll, and magnesium for the activity of the chloroplasts.

Root excretions have been studied by many, and Stoklasa and Ernst find that under normal conditions carbonic acid alone is excreted. If toxic properties are present they are the product of incomplete oxidation. Much attention has been given to the lime and magnesium ratio required by plants, and various proportions have been worked out for different crops. Studies on proteolytic and other ferments are being carried on by a number of investigators, and the presence of glucosids, enzymes, etc., in the plant world is found of very frequent occurrence. Freezing and anæsthetics have been found to liberate hydrocyanic acid from cyanogenetic glucosids. That color in plants can be influenced and entirely changed by chemical agencies has been shown by Kraemer, Bunyan, and others. Combes found that anthocyanin, the red coloring matter of plants, is associated with an accumulation of starch and glucosids. The great lifting power of plants is shown by Stone, who found fronds of the ostrich fern lifting a cement walk, the power required being estimated at 361 gm. per square millimetre.

PLANT PATHOLOGY. A considerable number of plant troubles that have been attributed to fungus attacks are now believed to be due to abnormal weather conditions, and the investigations of Morse, Clinton, Stone, Graebner, and others seem to substantiate their claims. A number of epidemics of tree diseases seem to have followed winters of unusual severity, and it is probable that the injury was primarily due to the freezing. This is particularly true of white pine blight, which appeared in New England.

The perfect stage of a number of fungi has been reported during the year, among them the leaf spot fungus of pears and quinces, the cotton anthracnose, the fungi causing the rots of stone fruits, potato rot, etc. A number of investigators have shown the influence of the medium on the variation of fungi and have suggested the application of cultural methods as a means for identifying fungi. Considerable data have been added regarding the susceptibility of different varieties of plants to disease, and the causes of resistance are receiving attention. Structural differences, enzymes, chemical stimulus, etc., have each been suggested as the basis of immunity. It has recently been shown that wheats immune to rust in India have been badly attacked when planted in southern Africa. Münch has found that about 12 per cent. of water in excess of the normal winter content is necessary for the development of fungi in structural timber. The presence of the potato rot fungus (*Phytophthora infestans*) has been shown to increase the glucose content of the tubers to fully double the normal amount.

A number of diseases new to the United States have been described or reported for the first time. These include a bacterial leaf disease of oats and other cereals; a muskmelon wilt due to *Mycosphaerella citrullina*; a necrosis of grapevine caused by *Fusicoccum viticolum*;

a disease of apples and pears in North Carolina due to *Hypochnus ochroleucus*, a fungus hitherto known only from Brazil; a bacterial disease of lettuce; a leaf spot (*Alternaria dianthi*) of carnations; and anthracnose of figs (*Colletotrichum caricæ*). Among diseases common in Europe, some of them very destructive, which were reported in America for the first time are the black scab of potatoes (*Chrysophlyctis endobiotica*); the white pine blister blight (*Peridermium strobi*); the crown gall of alfalfa (*Urophlyctis alfalfæ*); the silver leaf disease of plums, cherries, etc.; and the nematode disease of wheat due to *Tylenchus tritici*.

Considerable interest has been aroused by studies carried on at the Illinois, Nebraska, and North Carolina experiment stations on the cause of mouldy corn. The fungus *Diplotia zeæ* seems commonly associated with it, and E. F. Smith suggests a possible connection between this fungus on corn and the cornstalk disease of cattle and pellagra in man.

In Europe, aside from the commonly known plant diseases whose control is being investigated, considerable uneasiness has been caused by epidemics of oak mildew in France and Italy; leaf curl of potatoes in Germany; black scab of potatoes due to *Chrysophlyctis endobiotica* in Germany, England, and elsewhere. This is probably one of the most destructive potato diseases observed in recent years. It is claimed that this and the leaf curl disease reduced the potato crop of Germany by 50 per cent. in 1908. The American gooseberry mildew is still giving much concern in northern Europe, where it seems quite destructive.

Freeman and Johnson have shown that the loose smuts of wheat and barley may be controlled by soaking the seed grain in cold water for five hours and hot water (52-54° C.) for ten to fifteen minutes. Similar results were obtained in Germany by drying the grain in air heated to 60-65° C. The possibility of controlling grape black rot by spraying with Bordeaux mixture has been fully demonstrated in spraying experiments conducted in New York, Pennsylvania, Michigan, and elsewhere. A Bordeaux mixture consisting of four pounds of copper sulphate, three pounds of lime, and fifty gallons of water gave the best results. The long term experiments of the New York and Vermont experiment stations on spraying potatoes have been continued, and as a result of eighteen years' experiments, annual gains averaging 92 per cent. of the crop have been reported in Vermont due to thorough spraying.

Studies are being made by a number of investigators in this country and in Europe on the constitution of Bordeaux mixture. A number of new fungicides were tested in different countries and their true value determined. Few were found to equal Bordeaux mixture in efficiency. Studies in Italy, England, and elsewhere indicate that the amount of copper sulphate in Bordeaux mixture may be considerably reduced from the quantity usually called for by the formulas without diminishing its efficiency as a fungicide. The lime-sulphur mixture originally employed against the San José scale has been found to have marked fungicidal properties and many trials were made with it during the year.

LITERATURE. A number of important contributions to botanical literature appeared during

1909, among them a *Manual of the Rocky Mountain Region*, by J. M. Coulter and Aven Nelson; a *History of Botany*, 1860-1900, by J. Reynolds Green, supplementing Sachs' *History of Botany*, 1530-1860; an English edition of Warming's *Ecology of plants*; the fourth and fifth volumes on *Trees*, by Marshall Ward; *Zur Biologie des Chlorophylls*, by Stahl; *Die Chemie des Chlorophylls*, by Marchlewski; *Fungus Diseases of Plants*, by Duggar; *Maladies des plantes Cultivées*, by Delacroix and Maublanc; *Les Ennemis des Arbres Fruitières et des plantes cultivées*, by Vermorel; Lindau and Sydow completed their bibliography of mycological literature, nearly 30,000 titles being listed; Hollrung's annual summary of the literature of plant diseases; *Agricultural Bacteriology*, by Conn; *Bacteria in Relation to Country Life*, by Lipman, etc. A new journal, *Mycologia*, was established by the New York Botanical Garden as a continuation of the *Journal of Mycology*, edited by the late Dr. Kellerman.

BOWDOIN COLLEGE. An institution of higher learning at Brunswick, Me., founded in 1794. There were in 1909 345 students and 25 members of the faculty. This was the largest attendance in the history of the college. There were received in gifts during the year \$524,552.16. A number of important changes were made in the faculty, Professor Roscoe J. Ham was elected professor of German, and Henry Pratt Fairchild was elected Fayerweather professor of economics and sociology. There are 94,511 books in the library. The productive funds amount to \$1,379,894 and the total income is about \$100,000 a year. The President is Rev. William De Witt Hyde.

BOWLING. The ninth annual tournament of the American Bowling Congress was held at Pittsburgh in March. The individual championship was won by L. Sutton, of Rochester. Sutton and F. Bruggeman, of Sioux Falls, Ia., tied with a total of 691 for three games, and in the one game play-off, Sutton scored 215 against Bruggeman's 179. The two-men team contest was won by the Schwoegler Brothers, of Madison, Wis., who rolled 1304. In the five-men team event the Lipmans, of Chicago, were successful, with a score of 2962 pins. This is a world's record. The all events (nine games) championship went to James Blouin, of Cleveland, O., who made a total of 1885. The third annual tournament of the National Bowling Association took place in Madison Square Garden, New York, May 24 to June 12. The winners and scores were: Individual, E. Thompson, Brooklyn, 699; two-men team, Satterthwaite-Rodgers, Philadelphia, 1298; five-men team, Corinthian No. 8, New York, 2899.

BOXING. The Amateur Athletic Union held its annual boxing championships at Boston, April 12-13. The results of the final bouts were: 105-pound class, Arthur Souza, of Cambridge, defeated "Teddy" Murphy, of South Boston; 115-pound class, Joe Gorman, of Northboro, defeated Arthur Kane, of Cambridge; 125-pound class, T. F. Fitzpatrick, of South Boston, defeated K. Jewett, of Boston; 135-pound class, "Larry" Shelvin, U. S. S. *New Jersey*, of Roxbury, Mass., defeated John Morris, of East Boston; 145-pound class, M. J. McNamara, of Cambridge, defeated C. Anderson, of South Boston; 158-pound class, "Dan" Sullivan, of Cambridge, defeated J. Bely, Jr., of Waltham;

heavy-weight, "Phil" Schlossberg, U. S. S. *New Jersey*, defeated Emory Payne, of New York.

In professional pugilistic circles the most important event of 1909 was the signing of articles by "Jack" Johnson and James J. Jeffries, in which these fighters agreed to box 45 rounds or more on July 4, 1910, in California, Nevada or Utah. The purse offered for the fight, \$101,000, will be the largest ever fought for. The principal professional bout of 1909 was the contest between "Jack" Johnson and Stanley Ketchel for the heavy-weight title. The fight was held in San Francisco, Johnson knocking out Ketchel in 12 rounds. Another title bout was that between Nick Hyland and Battling Nelson, the lightweight champion, which was won by Nelson in the twenty-third round. The English Amateur boxing championships were held at London, April 7-8. The winners at the various weights were: light, A. J. Lambert; middle, W. Child and heavy, C. Brown.

BOYCOTT. In the case of Loewe v. Lawlor, known as the Danbury Hatters' case, the Supreme Court of the United States had, in 1908, declared a boycott to be illegal under the Sherman Anti-Trust law. In that case the complainant had claimed that he had suffered damages to the extent of \$80,000 as a result of the boycott. The court therefore authorized him to bring suit under that clause of the Sherman act which provides for the recovery of three-fold the damages from any combination in restraint of trades. Accordingly suit was brought in the United States Circuit Court in Connecticut by Loewe, the hat manufacturer, against the Hatters' Union for the recovery of \$240,000. Depositions were taken in numerous parts of the country and the case did not come before the jury until October 11, 1909. The case had not been concluded at the end of the year.

The suits growing out of the injunction secured by the Bucks Stove and Range Company against the American Federation of Labor (see INJUNCTIONS) hinged largely on the definition of a boycott, consequently the efforts of the judges in this famous case to define the boycott have permanent value. Justice Van Orsdel, who concurred in the modified injunction, as decreed by the Court of Appeals of the District of Columbia, March 11, 1909, defined a primary or direct boycott and a secondary boycott, approved the former and condemned the latter. He declared that any man or any number of men have an undoubted right individually to conclude not to patronize a certain firm. "It is also," he said, "the right of these men to agree together, and to advise others, not to extend such patronage. That advice may be given by direct communication or through the medium of the press, so long as it is neither in the nature of coercion or a threat." He, however, condemned the secondary boycott, that is, a conspiracy to injure the property rights of another, such conspiracy being carried out by threats and coercion. The offense thus consists only in coercing others against their will to refuse to extend their patronage.

At the same time, Chief Justice Shephard, who did not concur in the modified injunction, declared in somewhat similar language that the injunction "should be modified so as to restrain the acts only by which other persons have been or may be coerced into ceasing from business

relations with the Bucks Stove and Range Company." He held that one person or any number of persons may refuse their patronage, and may agree among themselves so to do; that, therefore, the American Federation of Labor has a legal right not to extend its patronage; and that "refusing to purchase those goods does not constitute a boycott in the legal sense." From these citations it appears that though the two justices agreed in condemning a secondary boycott, they did not agree as to whether a boycott actually existed in the case before them.

The American Federation of Labor contended that as no coercion or threatening had been exercised, no boycott in the legal sense existed, and therefore the order restraining it was not based on the facts. At its annual convention in Toronto, the Federation, with every show of enthusiasm, indorsed the report of its committee on boycott, which declared strongly for the use of the boycott as a measure of industrial warfare, when more peaceful means have failed to prevent oppression and injustice.

BOYÉ, MARTIN HANS. An American chemist and geologist, born in Copenhagen, Denmark, in 1812. He was educated in Denmark, and in the medical department of the University of Pennsylvania, graduating in 1844. In 1841 he jointly discovered the compound chloride of platinum with binoxide of nitrogen. From 1842 to 1845 he conducted a laboratory for instruction and analysis in analytical and practical chemistry. He was professor of chemistry in the Central High School, Philadelphia, from 1845 to 1859, retiring in the latter year. He made many valuable discoveries in the refinement of cottonseed oil. Dr. Boyé was a voluminous writer on chemical and geological subjects. Among his works are *Pneumatics, or the Physics of Gases* (1856); *Chemistry, or the Physics of Atoms* (1857). He contributed many papers and monographs to scientific journals.

BRANDY. See LIQUORS, FERMENTED AND DISTILLED.

BRAUN, FERDINAND K. A German physicist, who shared with William Marconi (q. v.) the Nobel prize for physics, awarded on December 9, 1909. He was born in Fulda, in 1850, and was educated at the Universities of Marburg and Berlin. In 1876 he became a professor of theoretical physics in the University of Marburg; in 1880 he was chosen to a similar position by the University of Strassburg, and in 1883 was chosen professor of physics in the Technical High School at Karlsruhe. In 1885 he went to the University of Tübingen, remaining there until 1888. In 1885 he was appointed professor of physics at the University of Strassburg. He has conducted investigations into the nature of elasticity in matter and the relations of chemical energy to electricity. He has also made inventions in the use of the cathode rays and contributed to the use of the ultra-microscope.

BRAZIL, UNITED STATES OF. The largest republic of South America, occupying the central and eastern part of the continent. The capital is Rio de Janeiro.

AREA AND POPULATION. The estimated area of the 20 states and Federal District comprising Brazil in 1900 was 3,218,139 square miles, and the population, according to the census of that

year, was 17,318,556. By treaty of November 17, 1903, Brazil acquired from Bolivia for about \$9,757,000 the Acre Territory, which has an area of about 73,720 square miles and an estimated population of over 70,000. The estimated population of Brazil in 1908 was 20,515,000, including some 600,000 uncivilized Indians. The most densely inhabited states (exclusive of the Federal District) are Rio de Janeiro, Alagoas, Paraná, Sergipe, and Ceará. The population of the larger cities is: Rio de Janeiro (1908), 858,000; São Paulo (1907), 274,000; Bahia, 230,000; Pernambuco, 120,000; Pará, 100,000. See EXPLORATION.

Immigration in 1907 was 67,786, and in 1908, 94,695, Brazil being the only American country showing an increase in the latter year. Most of the immigrants were established in the 26 "nucleus" colonies, of which 11 belong to the Federal government and the remainder to the states. Of the total in 1908, 37,628 were Portuguese, 14,862 Spaniards, 13,873 Italians, 5781 Russians, 5317 Austro-Hungarians, 2931 Germans. Immigration during the first five months of 1909 was greater than during the same period of 1908. Of the total immigration the state of São Paulo receives over 40 per cent. The recent experiment of introducing Japanese labor on the rice and coffee plantations proved unsuccessful, most of the Japanese having left the plantations and drifted to the cities.

EDUCATION. Education, which is not compulsory, is in a backward condition. Figures relating to the beginning of 1908 have been reported as follows: Pupils enrolled at the various public and private educational institutions of the country, 624,024; 11,216 primary schools, with 569,372 pupils; 328 secondary schools, with 30,897 pupils; 25 institutions of higher education, with 5829 students; 116 professional schools, with 17,966; 44 normal and pedagogical schools, with 5021; 25 industrial schools, with 7334; 9 commercial schools, with 736; 3 agricultural schools, with 166. Enrollment in the medical schools was 2905 and in the law schools, 2451. Roman Catholicism is the prevailing religion, but ecclesiastical equality obtains.

AGRICULTURE. Though only a small part of the country is under cultivation, the principal industry is agriculture. Coffee, the chief crop, is grown especially in the state of São Paulo, which furnishes about four-fifths of the world's production. Other important products are rubber, cacao, sugar, tobacco, corn, rice, and other cereals, cotton, yerba maté, beans, fruits, and nuts. The state government of São Paulo is making vigorous efforts to maintain the price of coffee. It has enacted a law imposing from October 1, 1908, an additional duty of 20 per cent. ad valorem on coffee exports from the state exceeding 9,000,000 bags (of 60 kilos) in the year ending July 1, 1909, 9,500,000 bags in that ending July 1, 1910, and 10,000,000 bags in that ending July 1, 1911. The state has arranged to issue a loan of £15,000,000, the proceeds to be applied to operations for the protection of coffee, and it is carrying on a propaganda in Great Britain and the British colonies for encouraging coffee consumption. The coffee crop for the season of 1907 was nearly 20,000,000 bags; for 1908, somewhat over 10,000,000 bags; for 1909, over 12,000,000 bags. The great bulk of these crops was grown in São Paulo. In 1908 Brazil took first rank as a producer of cacao, the crop amounting to nearly 70,000,000 pounds,

against 54,000,000 pounds in 1907; the estimated crop for 1909 was 72,000,000 pounds. About four-fifths of the cacao is produced in Bahia. Rice culture is extending; a few years ago rice imports amounted to over 2,000,000 bags annually and now have almost entirely ceased. Sugar culture is one of the oldest of Brazil's industries; its centre is the state of Pernambuco, which is credited with about half the total annual yield. The sugar production of the state in 1908 was 130,000 tons and for 1909 was estimated at 210,000 tons. Tobacco is raised chiefly in Bahia. Recently the production of yerba maté has increased. The government pays bounties to the producers of silk cocoons, and a law of December 31, 1908, authorized the payment of bounties to agricultural syndicates engaging in wheat cultivation. See IRRIGATION.

STOCK RAISING. Cattle-raising is an important industry, especially in Rio Grande do Sul, Matto Grosso, Minas Geraes, and Goyaz. The number of cattle in Brazil is not known, but an estimate places it at 25,000,000. In Matto Grosso large herds of cattle run wild, with less attention than was given stock in the early ranch days of the Western United States. In Rio Grande do Sul, where the most important of the jerked beef establishments are situated, about 625,000 beeves are slaughtered annually for this class of meat; in Matto Grosso about 605,000 are slaughtered for the same purpose. The annual slaughter of cattle in Minas Geraes is 305,000; in the state of Rio de Janeiro and the Federal District, 225,000. Dairy products are most important in Minas Geraes. That state sends annually to the other Brazilian states dairy and pastoral products valued at about \$14,000,000. Sheep raising has proved profitable in Rio Grande do Sul, Paraná, Santa Catharina, São Paulo, and other parts of southern Brazil.

MINERAL RESOURCES. Brazil's mineral resources are known to be considerable, but very little progress has been made in their development. As in other South American countries, exploitation is hindered by lack of adequate means of transportation. Mining at present is carried on chiefly in the state of Bahia, and its products include gold, diamonds, monazite (of which the greater part of the world's supply comes from Brazil), manganese, and mercury. Small quantities of copper, mica, talc, and agate are also produced; and coal is mined in Rio Grande do Sul and Santa Catharina. Petroleum exists in workable quantities. Recent official surveys show that Brazil has enormous, perhaps the largest, iron ore deposits in the world.

MANUFACTURES. In 1909 there were reported 3258 factories, employing 151,841 operatives and having a capital of \$199,672,200, and an annual production valued at \$222,459,900. These "factories" include some establishments which in the United States would be regarded as commercial rather than industrial. About one-fourth of the foregoing figures apply to the state of Rio de Janeiro and the Federal District. About 52 per cent. of the number of factories and more than that proportion of the number of employees are in the states of Rio de Janeiro, São Paulo, Minas Geraes, and the Federal District, all represented by the ports of Rio de Janeiro and Santos; and about 95 per cent. of the number of factories and a larger proportion of the capitalization and employees are on seacoast states. In the Federal District

the capital invested was \$50,996,700; in São Paulo, \$38,310,600; in Rio de Janeiro (state) \$25,858,600; in Pernambuco (state), \$17,617,200; in Rio Grande do Sul, \$14,761,800. The capital invested and the annual output in the principal branches of manufacturing were, respectively: Textile mills (194 in number), \$80,511,300 and \$51,333,300; sugar factories, \$22,218,600 and \$20,177,100; breweries, \$8,266,800 and \$6,805,800; foundries, \$6,889,200 and \$9,487,500; match factories, \$5,118,000 and \$6,382,500; flour mills, \$4,924,800 and \$11,807,700; soap and candle factories, \$4,543,800 and \$6,612,000; saw and planing mills, \$4,346,400 and \$9,413,700; yerba maté plants, \$4,275,000 and \$6,771,900; tobacco factories, \$3,885,300 and \$6,095,700; lime and cement works, \$3,377,700 and \$1,492,800; potteries, \$3,164,100 and \$3,108,900; sugar refineries, \$3,131,400 and \$4,624,200; hat factories, \$3,125,100 and \$4,615,200; shoe factories, \$3,035,100 and \$8,618,100; tanneries, \$2,845,500 and \$4,527,300; salt factories, \$2,838,300 and \$937,800; manufactures of railway material, etc., \$2,528,700 and \$3,304,200; bottling establishments, \$1,989,300 and \$2,763,600; chemical manufactures, \$1,950,600 and \$3,063,600; dried meat plants, \$1,883,100 and \$11,630,700. Of the 194 textile establishments, 161, with 46,000 operatives, \$70,328,400 capital, and \$40,507,800 annual production, are cotton factories. Jute factories, with 3489 employees, had a capital of \$4,740,000 and an annual output of \$6,717,000; the proportionately large output of jute products is due to the demand for coffee bags. Woolen factories, with 1957 employees, had a capital of \$4,454,000 and an annual output of \$3,412,500. Silk factories, with 244 employees, had a capital of \$289,500 and an annual output of \$312,600. Although Brazil has one of the greatest deposits of fairly high-grade iron ore in the world, only about 3.5 per cent. of its manufactures relate to iron or articles thereof and such establishments use imported material. This condition is due to lack of fuel, inadequacy of internal transportation facilities, and lack of talent in the iron-working trades; but the government has undertaken to secure the investment of foreign capital and the aid of foreign talent for developing iron manufacture.

FOREIGN COMMERCE. The values of imports and exports of merchandise have been as follows:

	1906	1907	1908
Imports	\$161,587,465	\$197,227,579	\$172,718,946
Exports	268,389,104	263,651,874	214,588,278

The leading imports are cotton textiles, coal, wheat, flour, wines, wheat, jerked beef, railway material, and codfish. For 1907 and 1908 the values of coal imports were \$10,004,213 and \$9,710,334 respectively; of briquettes \$1,138,286 and \$871,798 respectively. The imports of flour in 1907 amounted to 170,252,996 kilos, valued at \$9,508,861; in 1908, 151,076,077 kilos, valued at \$8,884,260; in the former year 126,379,414 kilos came from Argentina, and in the latter 112,074,753 kilos. Imports of condensed milk in 1907 reached the large total of \$715,441; in 1908, \$753,858.

Imports from and exports to the countries commercially most important were valued as follows in 1907 and 1908:



DR. NILO PEÇANA
Vice-President who became President

BRAZIL



Courtesy of "Bulletin of the International Union of the American Republics"

ALFONSO AUGUSTO MORIERA PENNA
President of Brazil
Died June, 1909

Countries	Imports		Exports	
	1907	1908	1907	1908
Great Britain	\$59,073,885	\$49,757,846	\$42,077,661	\$31,738,778
Germany	30,221,171	25,654,640	45,084,631	33,894,423
United States	25,139,390	20,918,273	84,721,265	86,170,785
Argentina	17,645,245	17,500,936	8,552,187	9,028,190
France	18,009,320	15,568,308	35,020,373	16,429,308
Portugal	11,447,385	8,936,880	1,824,186	944,753
Belgium	7,822,136	8,063,567	14,240,398	4,765,875
Italy	6,975,230	5,862,303	1,531,614	2,457,000
Uruguay	5,476,962	5,328,501	3,616,205	3,920,623
Austria-Hungary	3,296,324	2,765,564	7,425,934	8,897,766
Netherlands	1,116,930	939,000	10,363,487	9,882,479

During 1908 Brazil suffered a general business depression. For the first six months of 1909 imports were valued at \$82,280,714, as compared with \$90,304,852 during the corresponding period of 1908; the exports amounted to \$114,329,935, as against \$91,455,731 during the first six months of 1908. The advance in export values was mainly due to a rapid rise in the price of rubber. For the first eight months of 1909 imports and exports were valued at \$113,798,421 and \$162,638,318 respectively, as compared with \$117,414,295 and \$123,646,848 respectively in the January-August period of 1908.

SHIPPING. The reported entrances of over-sea shipping at Brazilian ports in 1907 were 5415 vessels of 11,168,324 tons net; in 1908, 5474 vessels of 12,362,480 tons net. The greater part of this shipping was British, German, Brazilian and French. The British vessels in 1908 numbered 2199 with a tonnage of 6,124,347, the German 920 with 2,536,032, the Brazilian 556 with 473,552 and the French 404 with 1,017,848. In 1908, 349 Argentine vessels entered, 344 Italian, 148 Austro-Hungarian, 126 Norwegian, 77 Dutch. In 1907 there were 13 entrances of American vessels, of 12,972 tons; in 1908, 10 vessels, of 7356 tons; of the 10 vessels in 1908, only three were ships with cargo, and these were sailing vessels. To improve shipping facilities extensive harbor works were under construction in 1909 at various ports, including Pernambuco, Rio Grande, Rio de Janeiro, and Pará. The merchant marine in 1909 consisted of 224 steamers, of 120,672 tons, and 298 sailing vessels, of 62,613 tons.

COMMUNICATIONS. At the end of 1908 the total length of railways was 11,572 miles, of which 633 miles were constructed in that year. Of the new construction, 487 miles are owned by the Federal government, and 146 by the states. On the same date 2338 miles were under construction and 3473 miles projected and approved. In the following year railway building continued its comparatively rapid progress. The construction of the Madeira-Marmore Railway, which will connect the Marmore and Madeira rivers (passing around the falls which have hitherto made impracticable a direct commercial route from Bolivia to the Atlantic), was being pushed in 1909 as rapidly as possible. In the autumn of that year some 2700 men were engaged in the work, which the character and remoteness of the country render most difficult; at that time nearly 60 miles of the line were completed. On December 31, 1908, the telegraph wires actually in service aggregated 36,119 miles—including the Federal trunk line (18,207 miles), the railway telegraph lines, the state line in Rio Grande do Sul, the subfluvial cable up the Amazon, and the foreign cables

along the coasts. There are about 3000 post-offices.

FINANCE. Revenue for 1908 is stated at 105,098, 128 milreis gold and 346,266,260 milreis paper; expenditure, 97,815,712 gold and 348,933,272 paper. For 1909 the approved estimates were 97,909,636 milreis gold and 286,520,500 milreis paper for revenue, and 75,390,272 gold and 330,352,781 paper for expenditure. By far the bulk of the revenue is derived from import duties. For 1909 the larger items of estimated expenditure were: Finance, 37,153,928 milreis gold and 89,554,934 milreis paper; industry and communications, 9,039,915 gold and 89,621,369 paper; navy, 9,441,153 gold and 38,044,489 paper. The gold milreis is worth 54.6 cents; for several years the Brazilian government has succeeded in keeping the value of the paper milreis at practically 30 cents. On December 31, 1907, the consolidated foreign debt amounted to £72,133,457, the internal paper debt, to 526,235,537 milreis, the floating debt, to 67,218 milreis gold and 169,023,914 milreis paper. On that date the metallic money in circulation amounted to 9,054,158 milreis silver and only 114,600 milreis gold. The amount of paper money in circulation is being gradually reduced; at the end of February, 1908, it was 642,963,951 milreis; on March 31, 1909, 634,166,844 milreis.

The Bank of Brazil, reorganized under decree of December 30, 1905, with a capital of 70,000,000 milreis in 350,000 shares of 200 milreis, has a monopoly of the gold checks issued for payment of duties. Its reserve fund at the end of 1908 was 1,081,902 milreis, as against 413,888 milreis at the end of 1907, and its operations in 1908 amounted to 345,141,458 milreis, as compared with 274,248,013 milreis in 1907. The net revenues of the bank in 1908 showed an increase of more than 67 per cent. over those of 1907.

NAVY. The navy includes the following vessels: Three armored battleships of about 13,000 tons each, one armored battleship of 5700 tons; two armored coast-defense vessels, aggregating 6320 tons; five protected cruisers, aggregating 16,290 tons; four torpedo gunboats, of 3590 tons; one gunboat, of 800 tons; 10 torpedo destroyers, of 6500 tons; two school ships, of 4000 tons; 14 first-class torpedo boats.

ARMY. By the law of January 4, 1908, every citizen of Brazil is liable for military service from his 21st to 44th year. This service is divided as follows: 1st line, two years in the ranks, seven years in the reserve; 2nd line, three years in the first line and four in the second; 3rd line, four years in the national guard and four in the reserve. The reservists of the first line are liable for manœuvres every year for four weeks, and those of the second line for

training annually for three or four weeks. The reorganization of the Brazilian army provided for the formation of the infantry into 15 regiments of 3 battalions of 3 companies each, and 12 battalions of chasseurs, each battalion having a machine gun section with 3 guns. Of cavalry there are 3 brigades of 3 regiments each, and 3 independent regiments, all of 4 squadrons. There are 5 regiments of 2 squadrons of divisional cavalry and 12 sections of scouts. There are 5 regiments of field artillery each of 3 divisions of 3 4-gun batteries; 5 6-gun howitzer batteries; 3 divisions of horse artillery of 3 4-gun batteries, 2 divisions of mountain artillery of 3 4-gun batteries. The heavy artillery includes 3 regiments of 6 batteries, 6 battalions of 2 batteries, and 6 independent. In addition there were 5 battalions of engineers and 5 squadrons of train. Provision was made for organizing this force into a field army composed of about 50,000 combatants and organized into 5 brigades, each composed of 3 regiments of infantry (of 3 battalions each), with 1 chasseur battalion, a regiment of cavalry, a regiment of field artillery (9 batteries) and 1 howitzer battery, a battalion of engineers and a squadron of train. In addition there would be 3 brigades of cavalry of 3 regiments each, and a division of horse artillery and the heavy field and mountain batteries. In 1909 the actual organization was composed as follows: General staff, 28; engineer staff, 66; general staff corps, 124; medical staff, 163; artillery staff, 62; 6 regiments field artillery (24 batteries), 2412; 6 battalions fortress artillery (24 batteries), 1984; 2 battalions of engineers, 862; 14 cavalry regiments, 5670; 1 transport corps, 278; 40 infantry battalions, 17,840; making a total of 29,489.

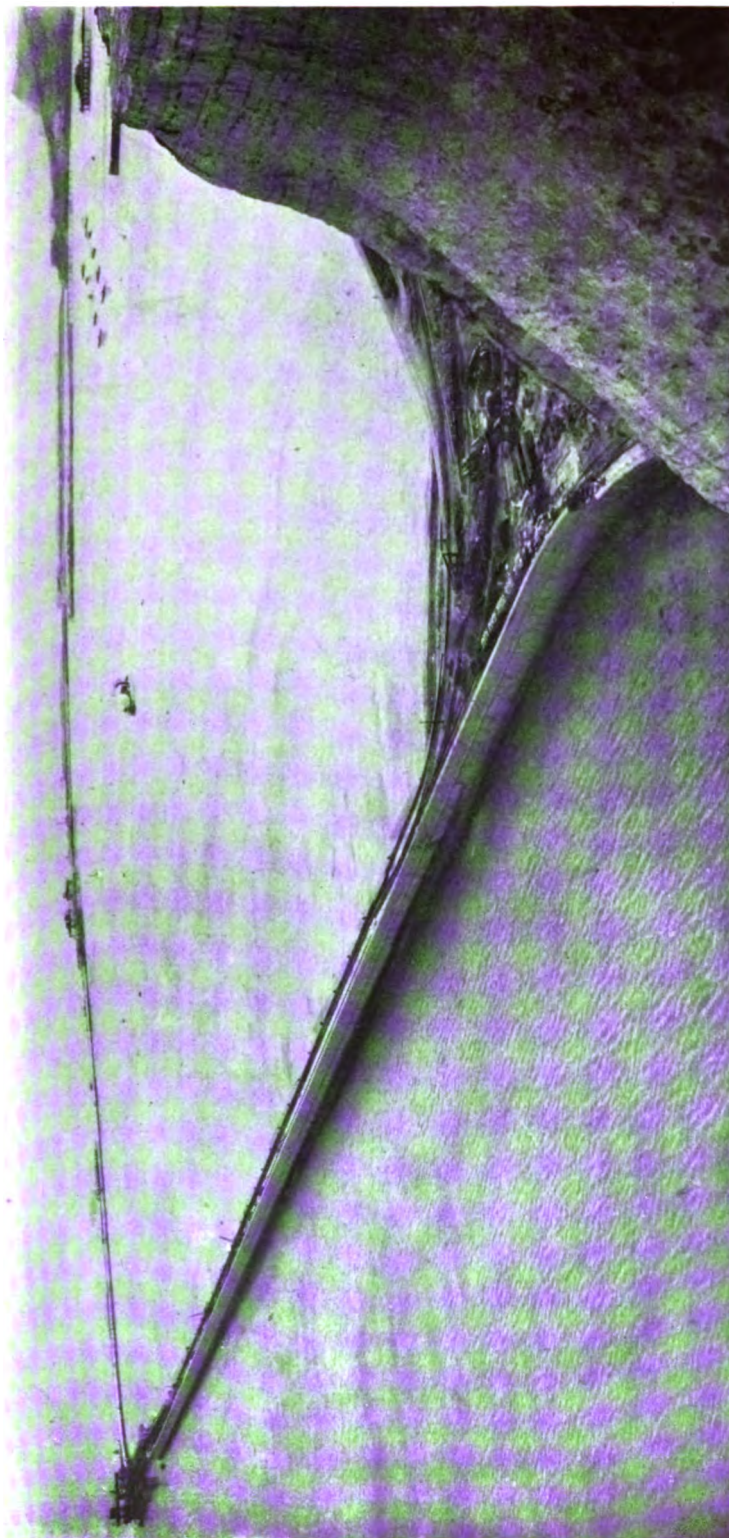
GOVERNMENT. Brazil is one of the five American republics which have the federal form of government, the others being the United States, Mexico, Argentina, and Venezuela. The executive authority is vested in a president, who is elected for a term of four years and is assisted by a cabinet of six ministers appointed by and responsible to himself. The legislative power devolves upon a congress of two houses, the Senate (63 members, elected for nine years) and the Chamber of Deputies (212 members, elected for three years). The President, Senators, and Deputies are chosen by direct vote. The President for the term beginning November 15, 1906, was Alfonso Augusto Moreira Penna; he died in June, 1909, and was succeeded on the 14th by the Vice-President, Nilo Peçanha. In matters not affecting the republic as a whole, the states are autonomous, having their own elected legislatures and governors.

HISTORY. The President's message to Congress was read on May 3. It announced that seven war ships would be launched under the new naval programme and that two-thirds of the amount required for this purpose had already been paid out of the ordinary revenues. The message referred to the great increase in immigration during the year, namely, forty per cent., and to the progress of railway construction. President Penna (q. v.), died on June 14, and was succeeded by Vice-President Peçanha. An arbitration with Great Britain was signed on June 18. A serious disturbance occurred in Rio de Janeiro in the tramway Light and Power Company, with

the result that for the time being the city was left in darkness and 25,000 were out of employment. The policy of the administration was one of retrenchment. Unnecessary expenses were cut down and measures involving unnecessary outlay were vetoed. The government sought to encourage the iron industry and the development of water power. It was announced in August that the President would undertake the reform of the Central Railway and the post-office. The former had not paid, but on the contrary had cost the government a large amount, being regarded rather as a means of employment to workmen than as a paying enterprise. The means proposed for the encouragement of the iron industry were its exemption from taxation and the levying of an import duty. In October tenders were invited on the rental of the port of Rio Janeiro.

BREAKWATERS. An important project involving massive breakwaters was the naval harbor at Dover, England, which was completed during the year and marked an important step in the development of this port. The work had been in progress for some twelve years and has involved an outlay of \$20,000,000. The new naval harbor formally opened by the Prince of Wales in October takes in an area of 610 acres and work was begun on the new commercial harbor and the railway station for cross-Channel traffic. This involved the reclamation of a large area of the foreshore east of the Admiralty pier. The breakwaters and protection arms and piers forming this large artificial harbor have an aggregate length of 11,154 feet or over two miles. These breakwaters were formed by massive concrete blocks weighing from 26 to 40 tons, deposited on the sea bed from a timber staging. They were set by the aid of diving-bells on the sea bed, which was first excavated and cleared. On the deepest section the depth of water encountered ranged from 47 to 53 feet below low spring tide. The width of the structures at foundation level varied from 52 to 57 feet, and at deck level from 40 to 47½ feet, in all cases the height of the dock above high water spring tides being 10 feet. As the foot of the breakwater on its outer side was exposed to severe scour and tidal action, it was protected by a masonry apron about 25 feet in width, built up of concrete blocks. The construction of these breakwaters formed one of the largest pieces of sub-aqueous masonry ever attempted and the prosecution of the work has been attended with success. There is formed a large and commodious harbor with a depth from 40 to 43 feet at low spring tides at the entrances and plenty of anchorage space for the largest war vessels. Designed chiefly as a rendezvous for the Channel fleet, it has great strategic importance.

A rubble mound breakwater 10,000 feet in length was in course of construction at Hilo, in the Island of Hawaii, to protect shipping in the harbor from the heavy seas that sweep from the northeast. The harbor, which is a deep open roadstead, is protected to a limited extent by Blonde reef on which the breakwater was being built. On July 1, 1909, 766 feet of complete breakwater had been constructed. It is estimated that by the middle of 1910 a length of some 3000 feet would be in position. The material used for construction was a basalt rock resembling heavy granite, which was quarried some 25 miles away, and transported to



Courtesy of "Scientific American"

**GENERAL VIEW OF ARTIFICIAL HARBOR AT DOVER, ENGLAND
THE EAST BREAKWATER**

the works. According to the specifications, from a depth of 3 feet below the water-line to the top, bowlders of not less than 8 tons in weight were to be used. The contractors believed that the rock employed, which weighed 160 pounds to the cubic foot, would, without the use of cement, resist any action of the waves.

BREEDING OF ANIMALS. See **STOCK RAISING.**

BREEDING OF PLANTS. See **BOTANY.**

BRETHREN, CHURCH OF THE, also known as **DUNKERS** or **DUNKARDS**. It forms a considerable body of Christians, whose faith and practice are not generally known outside of the localities in which they live. They originated at Schwarzenau, Germany, in 1708, with Alexander Mack as their leader. They were driven by persecution to the United States and made their first settlement at Germantown, Pa. From thence they spread through various sections of the country. They recognize the New Testament as the rule of conduct, believe in the Trinity, hold faith, repentance and baptism by triple immersion as conditions of pardon and membership. They observe foot-washing as a religious rite, followed by an evening meal, which they call the Lord's Supper. The Eucharist is a separate service following the Supper. Their mode of greeting is the kiss of love. They take no part in war, dress plainly, live simply, and are generally well-to-do. There are three groups of the denomination,—the Conservatives, Progressives, and Old Orders. The Conservatives are the most numerous and number about 100,000, having 900 congregations and over 3000 ministers, ten colleges and one of the largest denominational printing houses in the West, known as the Brethren Publishing House at Elgin, Ill. *The Gospel Messenger* is their organ. The Brethren have missions in Denmark, Sweden, France, Switzerland, Asia Minor, India and China. The latter was opened in the fall of 1908. At the General Conference, held at Des Moines, Iowa, in 1908, the change of the organization from "German Baptist Brethren" to "Church of the Brethren" was made. "Dunker" is a name that is not recognized within the denomination. The next General Conference will be held at Winona Lake, Ind., beginning June 7, 1910. The Progressive Brethren number about 17,000, and the Old Order 4000. The former have a college and publishing house at Ashland, Ohio. The Progressive Brethren opened up mission work in Argentina in the fall of 1909. The small body known as the Seventh Day German Baptists is now nearly extinct. The few members who are left, live in the vicinity of Ephrata, Pa.

BRIAND, ARISTIDE. A French public official, from July 23, 1909, Premier of France. He was born in Nantes in 1862 and was trained for the bar. He became identified with the Revolutionary Socialists, and was elected to represent that party in the Chamber of Deputies from the Loire. He early became distinguished for his ability, and in 1906 was delegated to report the bill providing for the separation of Church and State. His speeches and writings in favor of the measure gained for him much praise. For his services he was made Minister of Public Instruction and Worship. On December 31, 1907, he was made Minister of Justice, still retaining his former portfolio. For the cir-

cumstances leading to his election to the premiership, see **FRANCE**, under *History*.

BRIDGES. The completion of structures under way in 1908 rather than new undertakings of unusual magnitude characterized the year 1909 in bridge building. The changes recommended by the consulting engineers, when the design of the Queensboro Bridge, N. Y., was called into question, were made, and the bridge was formally opened and put into use. With the modification suggested the new structure was considered of far more than sufficient strength for its present use, and when traffic conditions of the future demanded its strengthening this could be arranged. The agitation over the Queensboro Bridge led to an examination of the new Manhattan Bridge which was nearing completion at the end of 1909 and though not quite ready for use was formally opened by Mayor McClellan late in December. This bridge is a suspension bridge with steel towers. The plans and the structure itself were examined by Ralph Modjeski, who had been retained as one of the consulting engineers to report upon a new Quebec Bridge. Mr. Modjeski's report was wholly favorable to the structure, it being pronounced "carefully designed, and when completed amply strong to carry the heaviest traffic which may be placed upon it in the near future, as well as any reasonable additional increase in the weight of properly regulated traffic it may be called upon to carry for many years to come." Not only superstructures but foundations and anchorages were thoroughly approved and the structure became a notable addition to the group of imposing structures spanning the East River, which, with the exception of the Forth Bridge, are the largest span bridges in the world.

The echoes of the discussion of the failure of the great Quebec Bridge in 1907 continued to be heard in 1909. After the disaster a commission appointed by the Canadian government, and consisting of Messrs. Maurice Fitzmaurice of London, Ralph Modjeski of Chicago, and H. E. Vantelet of Montreal, was engaged to prepare plans for a new bridge with somewhat higher headway than the old. The contracts for rebuilding the structure were let in December, 1909, and were awarded to the builders of the original piers for \$2,448,475. The site of the new bridge was the same, but the new north pier was to be moved 50 feet further out in the river, thus shortening the main span, which will be 1758 feet. The plans of the commission contemplated a cantilever design 88 feet in width and to contain 130,000,000 lbs. of steel as compared with 70,000,000 lbs. in the wrecked bridge. The estimated cost was \$7,500,000, but tenders for designs involving modifications of those prepared by the commission were invited, and it was understood that designs for a suspension bridge would also be considered. Few problems in the construction of bridges have received more attention than this one of the Quebec Bridge, and whatever the type of structure finally adopted it will represent the most conservative and enlightened judgment of American and European engineers.

During the year a new railway drawbridge was completed across the Willamette River just below Portland, Ore., for the Spokane-Portland Railroad. Its total length from opposite bank abutments is 1762 feet and the steel superstructure is supported by five massive reinforced con-

crete pillars faced with granite. The draw span is 521 feet from centre to centre of the end piers and it is claimed to be the longest draw span in the world, the great size being necessary on account of the large vessels passing up the river to Portland which has an extensive foreign trade. The cost of the new structure exceeded \$500,000 and over a year was required for its erection.

At the end of the year 1909, the new bridge of the Baltimore & Ohio, R. R. over the Susquehanna River at Aikin, Md., the erection of which was marked by the collapse of the false work on September 23 of the previous year, stood completed. The new bridge replaces a single track structure which consisted of three pier-connected spans with steel trusses and iron floor system over the river and a viaduct 1967 feet in length of plate girder spans on iron towers. For the new structure the old piers were employed and heavier double track river spans of substantially the same length were substituted. For the viaduct a structure with double track plate girders 90 feet in length and resting on concrete piers. The new bridge was constructed without disturbing traffic or interfering with the open passage for navigation.

Another notable bridge of the year was the four track reinforced-concrete structure carrying the main line of the Lake Shore & Michigan Southern Railway over the Grand River near Painesville, Ohio. It has an arch at the centre with a clear span of 160 feet and two end arches, each with a span of 69 feet 8½ inches, and replaced a four-arch stone masonry bridge, each arch of which had an 80 foot span.

A four-span concrete arch structure was built at Baltimore to carry Edmondson Avenue across Gwynn's Falls Valley and River and a branch of the Western Maryland Railroad. It is 542 feet in length, 76 feet wide, and 70 feet in height, carrying two trolley tracks, roadway and sidewalks. The main span is 139 feet in the clear and on one side is flanked by two approach spans of 60 feet and on the other one of the same dimensions.

A bridge 1004 feet in length was completed during the year across the Mississippi River at Fort Snelling, Minn. It is a steel deck structure with two three-hinged spans and braced arch spans of 364 and two 105 foot trussed deck spans.

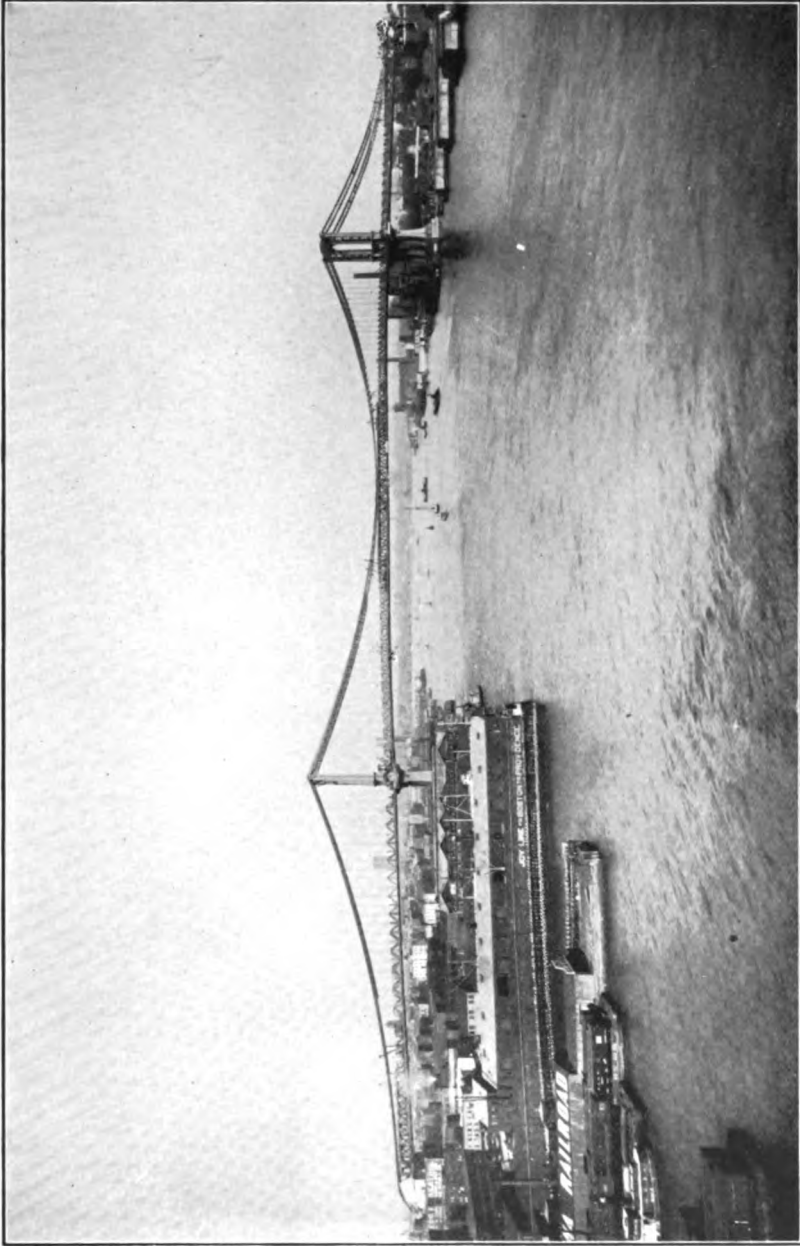
On the Hopateong-Slatford Low-Grade Cut-off of the Lackawanna Railroad a number of interesting concrete bridges were in course of erection. Among these the Delaware River Bridge is noteworthy as typical of modern railway bridge construction. It is about 1400 feet in length over all and consists of five 150 foot, two 120 foot, and two 33 foot arch spans, and contains some 50,000 cubic yards of concrete.

A notable bridge over the Gualagnay River in Entre Rios, Argentina, was completed in the early part of the year 1909. The structure, in addition to its length, was interesting for the different types of pier construction employed. Masonry, brick, cylinder, and screw piles were all employed for the numerous piers, there being fifteen spans of 71 feet, one of 252 feet, twenty of 71 feet, followed by an embankment, and then eleven of 71 feet.

In England few important bridges were in course of erection during the year. A double-deck bridge to accommodate both railway and highway traffic was built over the Wear River

at Sunderland. This bridge is 1220 feet between abutments and is composed of three shore spans, each of 200 feet, and a main river span of 330 feet which is 85 feet above high water. The superstructure was erected on granite masonry piers and for the centre span was built out on the overhang principle in order not to interfere with traffic in the river. About 8500 tons of steel were required for the bridge, the total cost of which was approximately \$2,250,000. Another important British bridge undertaking was the widening of the Blackfriars Bridge, which was opened on September 17. This reconstruction gave a widened roadway and new space for electric car tracks. A similar improvement was demanded for the adjoining Southwark Bridge to accommodate the increased traffic and it was to be widened and the grades eased at an expense of about \$1,300,000. In addition it was determined to build a new bridge lower down on the Thames which was to be known as the St. Paul's Bridge and cost in the neighborhood of \$8,000,000.

During the year there was active discussion of a proposition for the construction of a railway bridge between the islands of Masnedo and Falster in Denmark, the decision resting between a bridge and a ferry. The plan proposed for the bridge involved a series of 275 foot spans with two 150 foot drawbridges. The work was planned to comprise a series of bridges and embankments alternately arranged in series with the following lengths, 575, 1100, 2800, 5850, 1000, and 410 feet. The estimated cost was \$2,625,000. In Austria a long railway bridge was in progress of construction across the Vistula at Marienwerder. This structure, erected on caisson foundations, was 3480 feet in length and consisted of five steel middle spans of 326 feet with approach arches. Another interesting bridge was the Fades Viaduct on the Paris-Orleans Railway crossing the Sioule gorge in the mountainous region of central France. The rail level is 445 feet above the river bed and the viaduct structure, 1525 feet in length, is carried on two central piers of masonry 303 feet in height above the foundation stone. The central span of 472 feet was flanked by two stone spans of 380 feet each and at one end there was a short approach span. The bridge was interesting for the great length of its centre span which was formed by continuous lattice girders. The bridge was opened in October after considerable delay due largely to difficulties with the foundations. In Switzerland a somewhat similar problem of crossing a deep gorge was solved by a reinforced concrete arch at Letter in the Canton of Appenzell. This highway bridge had for its main span a 259 foot arch with 87 feet rise and was approached by several 33 foot 6 inch arches. The road carried is 22 feet 6 inches in width. Another example of reinforced concrete construction, though of quite a different type, was the long bridge or viaduct at Rotterdam on the line connecting that city with Schevingen. This aggregated 5300 feet in length and consists of a number of arched spans of varying size depending upon street openings, etc. In Rome a ferro-concrete arched bridge to span the Tiber was begun and was being constructed with a 328 foot span and a width of 65 feet 7 inches. A notable bridge was completed on the new railway line between Piræus and the Turkish frontier. This Assopus Viaduct crosses a deep gorge with a



Courtesy of "Engineering Magazine"

THE MANHATTAN BRIDGE OVER THE EAST RIVER, NEW YORK CITY

steel arch of 262 foot span and 78 foot approach span and on the other five similar spans, the gorge being 600 feet in width and 330 feet deep.

From Africa progress was reported on the construction of the narrow gauge Sedan Railway bridge across the Blue Nile at Khartum and the work was nearing completion at the end of the year. The superstructure is supported by twenty steel cylinders 16 feet in diameter carried down to 60 feet below low water. In addition to small approach spans there are seven spans 218 feet 6 inches and an opening left affording a clear passage of 111 feet 9 inches. The bridge carries a double track, a 21 foot roadway and an 11 foot footway. On the White Nile 192 miles above Khartum, to carry the Sedan Railway to the Cordofan district, a bridge was also under erection consisting of nine 156 foot spans and a 245 foot 6 inch drawn span giving two clear passages of 100 feet. The superstructure was being erected on masonry piers built in caissons sunk by compressed air.

During 1909 in New Zealand there was opened for traffic an important railway bridge on the Auckland-Wellington line. This Markatole Viaduct has a maximum height of 260 feet and is a framed steel structure containing 1000 tons of steel. There are five 100 foot spans carried on piers 36 feet longitudinally and several approach spans. There was also completed at Grafton one of the largest masonry bridges in the Southern Hemisphere, 910 feet in length with a central arch of 320 feet span and 147 feet high.

BRISTOW, JOSEPH LITTLE. An American public official, United States Senator from Kansas. He was born in Wolf county, Kentucky, in 1861, and graduated from Baker University, Kansas, in 1886. From 1886 to 1890 he was clerk of the district court in Douglass county, Kansas, and from 1890 to 1895 he was owner and editor of the daily *Salina Republican*. In 1895 he purchased the *Ottawa Kansas Herald*. From 1895-97 he was private secretary of Governor Morrill of Kansas. He was secretary of the Republican State Committee of the State from 1894 to 1898. From 1897 to 1903 he acted as Fourth Assistant Postmaster-General. In 1900 he was given charge of the investigation of the Cuban postal frauds, and became a national figure as a result of charges which he made and substantiated against officials high in the postal service. On his retirement from office in 1903 he again purchased the daily *Salina Republican-Journal*. He was appointed by President Roosevelt special Panama railroad commissioner in 1905. Senator Bristow is the head of the radical element of his party in Kansas, and as such defeated for reelection to the Senate Chester E. Long, having obtained in 1908 a majority of the votes requisite for nomination in the primaries held in November. He was elected to the office by the legislature on January 26.

BRITISH ACADEMY FOR THE PROMOTION OF HISTORICAL, PHILOSOPHICAL AND PHILOLOGICAL STUDIES. A learned society incorporated by Royal charter in 1902. It aims at the promotion of the study of moral and political science, including history, philosophy, law, politics and economics, archæology, and philology. The maximum number of ordinary fellows is fixed at 100. There were in 1909, 98, distributed under four main sectional committees: History and

Archæology, chairman, Lord Reay; Philology, chairman, S. H. Butcher; Philosophy, chairman, Professor B. Rosenquet; Jurisprudence and Economics, chairman, Sir W. R. Anson. The President of the Academy is S. H. Butcher and the Secretary, Professor I. Goldenz.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. See ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, British.

BRITISH COLUMBIA. A province of Canada, extending from the Pacific Ocean to the Province of Alberta. The area is stated at 312,630 square miles. Population in 1901, 178,657, including 28,949 Indians (and half breeds) and 19,482 Chinese and Japanese. Exclusive of Indians and Asiatics, the estimated population in 1909 was 280,000. The capital is Victoria, with about 40,000 inhabitants; the largest city, Vancouver, with about 85,000. The average annual yield of the industries is: minerals, \$25,800,000; lumber, \$12,700,000; manufactures, \$12,000,000; fruit, farm products and fisheries, \$7,500,000 each. In 1907-8 imports and exports were valued at \$24,180,452 and \$23,941,187 respectively. In 1909 the reported length of railways was 1685 miles. In 1906-7 revenue and expenditure amounted to \$4,444,593 and \$2,849,479 respectively; in 1907-8 \$5,979,054 and \$4,590,673 respectively. The public debt in 1908 was \$4,226,818. For further statistical details, see CANADA. The province is administered by a lieutenant-governor, appointed by the Governor-General of Canada and acting through the Executive Council or responsible Ministry (seven members). The law-making power is vested in the unicameral Legislative Assembly (42 members, including the seven members of the Executive Council). In 1909 the Lieutenant-Governor was James Dunsmuir (since May 11, 1906), and the Premier (and Minister of Mines) was Richard McBride.

HISTORY. At the close of 1908 the situation as regarded the immigration of Asiatics had improved. It was evident that the Japanese were living up to the terms of their agreement. During the six months ending December 31 only 146 Japanese had come into the province, a considerably smaller number than were privileged to enter under the agreement between the Dominion and Japan. During the same period 972 Chinese and two East Indians entered. It was reported early in 1909 that feeling still ran high against Asiatic immigration, but no serious difficulty arose. Leading citizens in the country denied that they felt special hostility against the Japanese though they believed it essential to the interest of the province that precautions should be taken against any large influx of aliens. In February the Dominion government vetoed the immigration act imposing an educational test on the model of the Natal Act, which was passed by the British Colonial Legislature in 1908. This measure has been recently passed each year by the provincial legislature and always vetoed by the Dominion government. In July Premier McBride announced that the government would accede to the wishes of the Temperance Party and take a plebiscite on the question of local option. It was expected that the vote would be taken in the spring of 1910. Owing to a disagreement among the members of the government over the railway policy the Minister of

Finance and the Minister of Land and Works resigned in the latter part of October; but the November elections fully sustained the government. The returns were also favorable to the adoption of local option. At the end of November floods resulting from the heavy rains caused the loss of life of twenty Japanese laborers on the Great Northern Railway near Westminster. At the beginning of December the appointment of Mr. Thomas W. Patterson as Lieutenant-Governor to succeed Mr. Dunsmuir, resigned, was announced.

BRITISH EAST AFRICA PROTECTORATE. A dependency of Great Britain bordering on the Indian Ocean between the Juba and Umba rivers (Italian Somaliland and German East Africa) and extending inland to the Uganda Protectorate. The capital is Nairobi. The estimated area is 177,100 square miles. The census has never been taken; the population has recently been estimated at 4,000,000, including about 25,000 Asiatics and 2000 Europeans and Eurasians. The Protectorate is divided into seven provinces: Seyidie, Ukamba, Tanaland, Jubaland, Kenya, Naivasha, and Nyanza, whose centres of administration are respectively Mombasa, Nairobi, Lamu, Kismayu, Fort Hall, Naivasha, and Kisumu. The Protectorate also includes the Witu Protectorate, a small tract of country at the mouth of the Tana River. Witu is now regarded, for administrative purposes, as a part of Tanaland. There remains a considerable region within the boundaries of the Protectorate which has not been developed and which is not included in any province. Mombasa, which possesses perhaps the finest harbor on the east coast of Africa, has about 30,000 inhabitants; Nairobi, about 13,500. Agriculture, to which much of the country is admirably adapted, is only in the early stages of development; but it is fostered by the government, and the area under cultivation is extending. The products include rubber, corn, wheat, rice, barley, coffee, tobacco, and cotton. There is much grazing land, and the live-stock industry promises to become important. In 1907-8 imports and exports were valued at £799,717 and £515,052 respectively; in 1908-9, £797,158 and £436,313 respectively. The principal imports are rice, grain, flour, and other food-stuffs, cotton textiles, and building materials. The leading exports are ivory, copra, rubber, grain, wax, and hides and skins. The importation of arms and ammunition is prohibited, except under stringent regulations, and the introduction and local manufacture of spirits is largely checked. The Uganda Railway extends from Mombasa to Port Florence, on Victoria Nyanza, a distance of 584 miles; in connection with the railway steamers are operated on the lake. The construction cost of the railway, which is owned by the Protectorate, up to March 31, 1908, was £5,456,761. The shipping entered, chiefly at Mombasa, in 1908-9, amounted to 922,276 tons. The telegraph system of the Protectorate includes about 2300 miles of wire. For 1907-8 the revenue amounted to £474,760; expenditure, £691,677; grant-in-aid, £152,975, exclusive of £40,000 for the abolition of slavery. Of the revenue, the government railway was credited with £226,620. For 1908-9, the estimated revenue and expenditure were £533,439 and £803,638 respectively; grant-in-aid, £138,000. Administration is carried on under the British Colonial Office. The chief executive offi-

cer in the Protectorate is the Governor and Commander-in-Chief (Sir E. P. C. Girouard in 1909). In 1907 the title of "Commissioner" was changed to "Governor," and executive and legislative councils were established. Attention was centred on the country in 1909 on account of the Roosevelt hunting expedition and the articles and photographs published in connection with this and the reports of other travelers.

BRITISH GUIANA. A colony of Great Britain, lying to the east of Venezuela on the northeastern coast of South America. The capital is Georgetown. Estimated area, 90,277 square miles. Estimated population, December 31, 1904, 301,923, of whom about one-third were East Indians and over one-third negroes. Estimated population of the larger towns, Georgetown and New Amsterdam, on December 31, 1907, 47,867 and 9114 respectively. East Indian immigrants and emigrants in 1907-8 numbered 1855 and 1195 respectively. The birth rate in 1907 was 28.3, and the death rate 36.9, per thousand inhabitants. In 1908 there were 220 government-aided schools, with 30,888 pupils. The chief product is sugar (which forms 66 per cent. of the export trade), there being about 75,000 acres under sugar-cane out of the total of 90,000 acres under cultivation. The country is rich in gold, although in recent years the output has declined; the output in 1906-7 was valued at £311,740, and in 1907-8, £245,534. Imports and domestic exports in 1906-7 were valued at £1,890,804 and £1,659,280 respectively; in 1907-8, £1,765,358 and £1,545,303 respectively. The values of the leading imports in 1907-8 were: Textiles, £232,160; flour, £194,078; manures, £138,775; hardware, cutlery, and tools, £60,549; beef and pork, £58,570; oils, £58,394. The leading domestic exports in the same year were: Sugar, £1,004,025; raw gold, (65,717 ounces) £239,229; rum, £96,800; balata, £76,778; molasses, £21,548; timber, £20,272; molasses, £4104; diamonds (1863 carats), £3026. Imports from and exports to Great Britain in 1907-8 were valued at £925,458 and £615,317 respectively; British possessions, £192,220 and £615,317 respectively. In the same year the total tonnage entered and cleared was 786,880. There are 94 miles of railway. Revenue and expenditure in 1906-7 amounted to £535,745 and £514,053 respectively; in 1907-8, revenue, £546,882, and expenditures, £517,706. Of the revenue in the latter year, £336,617 were derived from customs. The public debt on March 31, 1908, stood at £919,320. The colony is administered by a Governor (Sir Frederick Mitchell Hodgson in 1909), who is assisted by an Executive Council and by a Court of Policy (seven officials and eight elected members). The Court of Policy discharges the functions of a legislative council except in levying taxes, which is the prerogative of the Combined Court, composed of the Court of Policy, and six elected representatives.

BRITISH HONDURAS. A crown colony of Great Britain in Central America, on the Caribbean Sea. The capital is Belize (population 10,400). Area, about 7562 square miles. Estimated population in 1908, 43,270. The birth rate in 1907 was 36.622, and the death rate, 22.202, per thousand inhabitants. Of the births, 45.15 cent. were illegitimate. Primary schools (not including two receiving no government

aid) numbered 40 in 1907, with 4515 pupils enrolled. Secondary schools have about 300 pupils. The staple products are the natural woods of the country, principally mahogany and logwood. Other products include rubber, bananas, pineapples, oranges, mangoes, coconuts, sugar, and cacao. About 50,000 acres are under cultivation. Labor is scarce, and much food-stuff which could be raised in the country is imported. Imports and exports in 1907-8 were valued at \$2,415,723 and \$2,211,036 respectively; in the fiscal year 1909, \$2,676,723 and \$2,201,799 respectively. About one-half of the trade, both import and export, is with the United States, Great Britain ranking second. The chief domestic exports are mahogany and logwood (14,398,422 feet and 5744.5 tons respectively in 1908), bananas, cedar, and coconuts. Revenue and expenditure for 1907-8 amounted to \$395,183 and \$516,700 respectively; for the fiscal year 1909, \$360,914 and \$535,978 respectively. Over one-half of the revenue is levied from customs. The public debt in 1908 stood at \$168,815. The colony is administered by a Governor (Gen. E. J. E. Swayne in 1909), who is assisted by an executive and a legislative council.

The government as reconstituted in August, 1909, consists of a governor, an executive council and a legislative council of eight members, three official and five unofficial.

BRITISH INDIA. See INDIA, BRITISH.

BRITISH KOWLOON. See HONG KONG.

BRITISH NEW GUINEA. See PAPUA.

BRITISH NORTH BORNEO. A protectorate of Great Britain occupying the northern part of the island of Borneo. Estimated area, 31,106 square miles. Population, about 175,000, consisting mainly of Mohammedan settlers on the coast and aboriginal tribes inland, with some Chinese traders and artisans. The chief towns are Sandakan (population, about 8000, mainly Chinese) and Jessetown. A large area has been alienated by the government for the cultivation of tobacco, tapioca, sago, rubber, coconuts, and coffee. Other products are pepper, rice, gums, and woods. Most of the country is still in a primitive state. Various minerals are known to occur, but there has not been any exploitation of importance. In 1907 imports and exports were valued at 4,332,913 dollars (Mexican) and 2,921,100 dollars respectively; in 1908, 4,612,841 dollars and 2,754,788 dollars respectively. The chief export is tobacco, which amounted to 2,943,645 dollars in 1906, 2,459,122 in 1907, and 2,772,172 in 1908. There are 119 miles of railway in operation. Revenue and expenditure (exclusive of capital expenditure on railways and telegraphs) amounted to 1,139,554 dollars and 683,326 dollars respectively in 1907; in 1908, revenue 1,220,677, and expenditure, 748,584. The protectorate is under the jurisdiction of the British North Borneo Company. It is administered by a governor (E. P. Gueritz in 1909) in Borneo, whose appointment is subject to the approval of the British Colonial Secretary, and by a Court of Directors in London.

BRITISH SOMALILAND. A protectorate of Great Britain on the Gulf of Aden, between the French and Italian dependencies and bordering on Abyssinia. Estimated area, 68,000 square miles. The inhabitants, estimated at about 300,000 in number, are Somalis and Mohammedan and, except along the coast,

nomads. The principal towns are Berbera (about 30,000 inhabitants in the trading season), Zeila (15,000), and Bulhar (12,000). Imports and exports in 1907-8 amounted to £233,238 and £215,708 respectively; in 1908-9 £293,505 and £227,783 respectively. The principal imports are rice, textiles, and dates; the leading exports are hides and skins, ostrich feathers, cattle and sheep, and gums. There are over 300 miles of telegraph line. Revenue and expenditure in 1907-8 amounted to £28,607 and £105,201 respectively; grant-in-aid, £37,000. Since April 1, 1905, the administration has been carried on under the Colonial Office. The British Commissioner in the Protectorate, in 1909, was Capt. H. E. S. Cordeaux. In January it was decided to increase the number of British troops in the Protectorate on account of the depredations of the followers of the Somali Mullah. The subject came up for debate in Parliament on March 15, when the Conservatives cited it as an instance of the danger involved in a purely defensive policy. They declared that the trouble was likely to increase, the Mullah being a cruel despot who, unless promptly punished, would continue to kill the men and carry off the women in his raids. The British troops attacked the Mullah in May and regained possession of 600 camels that had been taken. Six British Somali soldiers were killed.

BRITISH SOUTH AFRICA. See SOUTH AFRICA, BRITISH.

BRITISH WEST AFRICA. A collective name for the following British colonies and protectorates in Western Africa: Northern Nigeria, including the Protectorate; Southern Nigeria, including the Protectorate and the Colony of that name; Gold Coast Colony, including Ashanti and the Northern Territories; Sierra Leone, including the Colony and the Protectorate; and Gambia, including the Colony and the Protectorate (see these separate titles). In January, 1909, fighting was reported between the natives and the German escort to the Anglo-German Boundary Commission in the hinterland of Calibar. The German troops had been furnished to the Commission in return for the aid which the Cape Government had rendered on the German Southwest Africa frontier. The question of liquor traffic with the natives caused much concern, and the government appointed a committee in January to investigate the subject. In July it was announced that the British government would enter into negotiations with Germany, France, Belgium, Portugal and Spain with a view to increasing the duty on imported spirits into the West African Colonies and Protectorates, to restricting the entry of arms and ammunition into these colonies and to bringing about an international convention with regard to quarantine and like matters. The duty on imported spirits was at that time five francs per gallon. The Colonial Office sanctioned a special sanitary branch of the West Africa Medical Service, to consist of special sanitary officers, each under the chief medical officer of the Colony, who should be in regular communication with the Consultative Board sitting in London.

BROOKLYN INSTITUTE OF ARTS AND SCIENCES. An educational institution of Brooklyn, New York City, incorporated in 1824 as the Brooklyn Apprentices' Library Associa-

tion, reincorporated in 1835 as the Brooklyn Institute and again incorporated in 1890 under the present title. The membership of the Institute on June 1, 1909, was 7032, an increase of 329 over the previous year. The receipts for the year 1908-9 were \$272,000. The permanent fund amounted on July 1, 1909, to \$399,554. During 1909 the down town work of the Institute was removed to the new Brooklyn Academy of Music, in which building the general educational work is carried on. The General Institute Museum contains art and scientific collections, the property of the Institute. During the year branches were established at Flushing and Garden City. A valuable addition was made to the art collections by the purchase of 83 water color paintings by John S. Sargent at a cost of \$19,514. An agreement was made with the State government for the establishment and maintenance of a botanic garden and arboretum in Institute Park. Daniel C. French and twelve sculptors associated with him during 1909 completed their work of creating thirty monolithic sculptures for the façade of the Museum. The attendance at the lectures of the Museum during the year was 258,275 and the attendance at other branches made a total attendance for the year of 594,686, an increase of nearly 100,000 over the attendance of 1908.

BROOKS, CHRISTOPHER PARKINSON. A technical educator, died August 4, 1909. He was born in Blackburn, England, in 1866, and was educated at Queen Elizabeth's School in Blackburn. From 1884 to 1895 he was connected with the textile department of several scientific schools in England, and was also managing director of English cotton mills. He organized and was director of the Lowell (Mass.) Textile School from 1896 to 1898, and in the latter year became managing director of the New Bedford Textile School, holding this position until 1904. He established in 1898 the American Correspondence School of Textiles and in 1899 he delivered a course of lectures in Boston. He wrote *Cotton Manufacturing* (1888); *Weaving Calculations* (1889); *Cotton, its Uses, Varieties, Fibre Structure and Cultivation* (1898). He also wrote many important technical articles on textiles.

BROTHERHOOD OF ST. ANDREW. See SAINT ANDREW, BROTHERHOOD OF.

BROUGH, LIONEL. An English comedian, died November 8, 1909. He was born in 1836 and began work as a clerk in the office of the editor of the *Illustrated London News*. He helped to publish the first issue of the *London Daily Telegraph*, and later was on the staff of the *London Star*. His first appearance as an actor was in 1854 at the London Lyceum in *Prince Pretty Pet*. His success as a comedian was rapid and he played many well-known parts. Among these was Tony Lumpkin, which he played 777 times. He also played in Shakespearean comedy, and was especially successful as Touchstone. He performed in the United Kingdom, South Africa and the United States. In April, 1909, he appeared in the *School for Scandal*. Brough was one of the most popular comedians of his generation on the English stage.

BROWER, DANIEL ROBERTS. An American neurologist, died March 1, 1909. He was born in Philadelphia in 1839 and graduated from the Polytechnic College of that city in 1860,

and from the medical department of the University of Georgetown in 1864. In the same year he was appointed assistant surgeon of United States Volunteers. From 1868 to 1875 he was medical superintendent of the Eastern Lunatic Asylum of Virginia at Williamsburg. He became later professor of nervous and mental diseases in the Rush Medical College of Chicago. He was also professor of nervous diseases in the Post Graduate School, Chicago. He was for several years editor of the *Medical Journal* and was the author of numerous monographs and a number of text-books on insanity.

BROWNSVILLE INCIDENT. See UNITED STATES.

BROWN-TAILED MOTH. See ENTOMOLOGY.

BROWN UNIVERSITY. An institution of higher learning at Providence, R. I., founded in 1764. The attendance in 1909 was 972, divided as follows: Undergraduate men, 685; undergraduate women, 185; graduate students, 102. There were 105 members of the faculty. In the University Library there were 165,000 volumes, and in the John Carter Brown Library, 20,000. There were received during the year in gifts and endowments, two scholarships; a library of English literature in memory of Hammond Lamont; \$25,000 additional endowment for Rockefeller Hall from John D. Rockefeller, Jr.; \$10,000 from Ratcliffe Hicks for a prize fund; and the Women's College was made a residuary legatee of the estate of Mrs. H. G. Miller. Gifts of land were also made to the Women's College. Among the changes in the faculty were the death of Prof. B. F. Clarke, the resignation of Prof. A. S. Morse of the Romance Department, and the appointment of A. W. Locke to the Music Department and A. B. Morton to the Department of Mathematics. The total productive funds of the University amount to about \$3,500,000 and the annual income to about \$213,000. The president is Dr. W. H. P. Faunce.

BRYAN, ELMER BURRITT. An American educator, inaugurated October 20, 1909, president of Colgate University. He was born in Van Wert, Ohio, in 1865, graduated from the Indiana State Normal School in 1889 and from Indiana University in 1893. He carried on post-graduate studies at Harvard and Clark Universities. In 1893-4 he was principal of the Kokomo High School. From 1894-96 he was teacher in the Manual Training School, Indianapolis. He was appointed to the chair of social and educational science in Butler College in 1896, and from 1897 to 1901 was assistant professor, and full professor of pedagogy in Indiana University. In 1901-2 he was principal of the Insular Normal School of the Philippine Islands, and in 1903 he acted as General Superintendent of Education in the Philippines. From 1903 to 1905 he was professor of educational and social psychology at Indiana University. From 1905 to 1908 he was president of Franklin College.

BRYN MAWR COLLEGE. An institution for the higher education of women at Bryn Mawr, Pa., founded in 1885. The number of students in 1908-9 was 420, and the faculty numbered 58. There were in the library 58,548 volumes. During the year the alumni association of the college gave \$100,000 for its endowment, the interest of the capital to be spent

in increasing the salaries of the full professors. On January 26, 1909, the General Education Board promised to give to the college \$250,000 toward its academic endowment provided that by June 2, 1910, a supplemental sum of \$280,000 be contributed to the college. The sum of \$34,000 was subscribed for rebuilding and enlarging the gymnasium. The work was completed in February, 1909. Two additional European fellowships of \$500 each were given in the year 1909, to be held in the year 1909-10, and two traveling scholarships of the value of \$150 each were given to graduates and held in the summer of 1909. The productive funds of the college amounted to about \$1,200,000 and the income to about \$85,000. The president is Miss M. Carey Thomas, Ph. D., LL. D.

BUCHANAN, WILLIAM INSCO. An American diplomat, died October 16, 1909. He was born near Covington, O., in 1853, and received his education in country schools. He was said to have worked in his early youth as a blacksmith. In 1874-5 he was engrossing clerk of the Indiana House of Representatives. He removed, in 1882, to Sioux City, Iowa, where he went into business as a dealer in crockery. He managed the Corn Palace Exposition in that city, as well as four similar enterprises, with much success, and in 1893 he was appointed commissioner to the Chicago World's Fair. Here he took charge of the Department of Agriculture and Forestry. In 1894 he was appointed by President Cleveland Minister to the Argentine Republic. His success in this office was so great that President McKinley asked him to remain and he served in that capacity until 1900. He knew little of diplomacy before assuming this office, but used his business knowledge with such skill and sagacity that the advantage of closer trade relations between North and South America became known all over the southern continent. The most notable accomplishment during his service as Minister was his decision as arbitrator between the Argentine Republic and Chile over the boundary question. As a result the two republics negotiated a treaty which provided for reducing their military establishments. Mr. Buchanan also negotiated an important reciprocity treaty between the United States and Argentina. Following his retirement as minister in 1900, he took service with the New York Life Insurance Co. and the Westinghouse interests, and adjusted matters in which they were concerned in South America. In 1901 he became Director-General of the Pan-American Exposition at Buffalo. When the new Panama government was recognized by the government of the United States in 1906 Mr. Buchanan was chosen by President Roosevelt as the man most able to handle the delicate questions involving the construction of the Panama Canal and the relations between Colombia and Panama. His service won the praise of the administration at Washington. In 1902 he was appointed a delegate by the United States to the Pan-American Conference held in the City of Mexico, and in 1906 he was sent to the second Conference held at Rio Janeiro as chairman of the American delegation. Largely through his efforts the Permanent Court of Arbitration for the settlement of disputes between the Central American countries was established. In the conference between representatives of the Central American Republics at which the treaty for the es-

tablishment of the peace court was negotiated, Mr. Buchanan appeared as adviser on behalf of the United States. After the deposition of Castro as President of Venezuela and the accession of President Gomez in 1908, Mr. Buchanan was appointed to adjust the differences which had arisen between the government of Venezuela and the United States over claims made against Venezuela by American citizens. Through his efforts several of these claims were adjusted amicably and the remaining claim was referred to the permanent tribunal of arbitration at The Hague. (See UNITED STATES, paragraph *Foreign Relations*, and VENEZUELA.) Mr. Buchanan was appointed agent of the United States in this arbitration and at the time of his death was engaged in preparing the case.

BUCK, DUDLEY. An American musician and composer, died October 6, 1909. He was born at Hartford, Conn., in 1839. In his early boyhood he showed a strong taste for music, and although his father, who was a shipping merchant, had planned a similar career for his son, the latter's taste for music was so evident, that he was permitted to make a choice of the profession of music. He took lessons from local teachers and at the same time entered Trinity College. Soon afterwards he became organist of St. John's Episcopal Church in Hartford. In his junior year at Trinity he abandoned his studies and went to Leipzig, where he entered the Leipzig Conservatory of Music. There he met as fellow students Sir Arthur Sullivan, Carl Rosa, John Francis Barnett and others who afterwards became eminent musicians. His teachers included Moritz Hauptmann in harmony, Julius Rietz in orchestration, and Moscheles and Plaidy in piano instruction. He later went to Dresden to study the organ under the noted organist, Johann Gottlob Schneider. After three years of music study in Germany he spent a year in Paris. In 1862 he returned to the United States, and after the death of his parents removed to Chicago, where he was occupied as organist, composer and teacher. The Chicago fire destroyed his effects, including manuscripts of several unfinished compositions. Following this, Mr. Buck removed to Boston, where he became organist of St. Paul's Church. He later became organist of the Boston Music Hall, which was at that time the highest honor to which a Boston musician could attain. He attracted the attention of Theodore Thomas, who was at the time conducting concerts at the Central Park Garden, New York City, and the latter in 1875 invited Mr. Buck to become his assistant conductor. This offer was accepted. His fame as an organist and writer of music grew steadily until it became international. He was invited to compose the cantata for the opening of the Centennial Exposition in 1876. In 1878 he was invited to take permanent charge of the new music hall in Cincinnati, but he had previously accepted a call from Holy Trinity Church in Brooklyn to become its organist and musical director. He remained in this position for twenty-two years, resigning in 1902 because of limitations set upon his selection of music. The same year he became organist of Plymouth Church, Brooklyn, but subsequently resigned. He was for twenty-five years director and organist of the Apollo Club of Brooklyn. Mr. Buck's important compositions

were of various kinds; the greater number are vocal, sacred and secular. In 1874 he composed *The Legend of Don Munio*, a dramatic cantata, the text of which has a metrical phrasing of his own from Washington Irving's *Alhambra*. He also wrote an introduction to the symphony *Marmion*, which was produced by the Philharmonic Society of Brooklyn under the leadership of Theodore Thomas. His *Creole Lover's Song*, with verses by Edmund Clarence Stedman, became very popular. His largest work, *Light of Asia*, was published and first performed in London in 1896. He wrote also the score of a comic opera. His literary works include *A Dictionary of Musical Terms* and *Influence of the Organ in History*. Mr. Buck was, without question, the most widely known of American organists.

BUCK, LEFFERT LEFFERTS. An American engineer and bridge builder, died July 17, 1909. He was born in Canton, N. Y., in 1837. After attendance at the public schools and some experience in practical mechanics he took a special course in mathematics at St. Lawrence University. He left these studies to enlist in the Federal army, and served throughout the Civil War. For gallantry in action he was made captain, and brevetted major. Following the war he graduated from the Rensselaer Polytechnic Institute in 1868. He took charge of the first railway survey through the Adirondacks, and shortly after became an assistant surveyor for New York City. The building of bridges was his chief ambition, and in 1871 the opportunity came to him to plan and build the Viragus viaduct on the Lima and Aroya Railroad in Peru. This he later replaced by a cantilever bridge. He built, also, a suspension bridge in Northern Peru. In 1873 he entered the mechanical department of the Illinois Central Railroad. One of his most remarkable engineering feats was the complete rebuilding of the International Suspension Bridge at Niagara Falls. In 1881-2 he was resident engineer of the Central Railroad of New Jersey, and built the Lake Hopatcong Railroad for that company. He also built a number of bridges for the Northern Pacific Railroad, and two bridges over the Genesee River, at Rochester, N. Y. In 1895 he became chief engineer of the Bridge Department of New York City. He designed the Williamsburg bridge, but friction with the city officials prompted him to withdraw, and he remained consulting engineer only until the second great span was completed. He was in charge also of the plans for the Manhattan Bridge across the East River. Mr. Buck was a member of the Intercontinental Railway Commission, representing Peru and Ecuador.

BUCKWHEAT. Buckwheat remains one of the comparatively unimportant crops of the country. If the value of the crops were generally as well understood as in New York and Pennsylvania it is probable that it would be more extensively grown, for its culture may be successfully practiced in many States. Buckwheat has the advantage of a short growing season and can often be readily grown as a catch crop. It has the disadvantage, however, of being difficult to harvest, as it cannot be bound into tight sheaves like the other grains, but must be handled loose to keep the stems from moulding and rotting. The total acreage

in 1909 was 834,000 and the production 17,438,000 bushels, worth a little over \$12,000,000. As compared with the previous year there was an increase of 31,000 acres in the area devoted to the crop and of 1,564,000 bushels in the production. The leading buckwheat States are New York and Pennsylvania, which produced this year 7,512,000 and 5,655,000 bushels respectively, or almost three times as much as all the other States put together. The buckwheat area of New York was 313,000 acres and of Pennsylvania 290,000 acres. Ranking next to these States are Michigan, producing 829,000 bushels on 58,000 acres, Maine 644,000 bushels on 23,000 acres, West Virginia 499,000 bushels on 22,000 acres, and Virginia 378,000 bushels on 21,000 acres. The average yield per acre in 1909 for the entire country was 20.9 bushels. There is apparently no great domestic demand for buckwheat and most of the business done in the New York market is for export. In 1908 166,127 bushels were shipped abroad. The Canadian crop this year was quite satisfactory.

BUFFALO DRAINAGE CANAL. See CANALS.

BUILDING. See ARCHITECTURE.

BULGARIA. A constitutional monarchy (since October 5, 1908) of the Balkan peninsula. Capital, Sofia.

AREA AND POPULATION. Area (including Eastern Rumelia, 12,585 square miles; population 998,431), 37,199 square miles. Population (1905) 4,035,575, divided according to nationalities as follows: Bulgarians, 3,210,502; Turks, 514,658; Rumanians, 88,109; Greeks, 69,820; Gypsies, 67,396; Spanish Jews, 36,446; Germans, 5039; Russians, 3299; others, 40,306. Sofia had (1905) 82,621 inhabitants; Philippopolis, 45,707; Varna, 37,417; Rustchuk, 33,632; Slivno, 25,011.

EDUCATION, ETC. Primary education is free and nominally compulsory, with fees in higher grades only, these fees being confined to the rich. The State supplies two-thirds, local taxation one-third of the cost of primary instruction; one-half of the cost of secondary instruction is borne by the State. Foreign schools are numerous, special and technical schools few. There were (1906-7) 4581 elementary schools, with 8771 teachers and 400,308 pupils; 390 secondary schools, with 1990 teachers and 44,190 pupils. The non-Bulgarian schools were Turkish, Greek, Jewish, Armenian, American, French and German. The University of Sofia had (1904-5) 943 students, of whom 112 were women.

The Greek Orthodox is the established church. Other religions are recognized, and the clergy of both Orthodox and other religious bodies receive grants from the State. In 1905 there were 3,346,787 Greek Orthodox, 603,113 Mohammedans, 37,653 Jews, 29,442 Roman Catholics, 12,694 Gregorian Armenians, and 5402 Protestants.

INDUSTRIES. Agriculture is the chief occupation of the people (about five-sevenths of the population), and wheat is the principal crop produced. Of the total area, 3,585,544 hectares are under cultivation: Cereals, 2,158,338; vines, 89,818; tobacco, 3000, and 3,041,324 under forest. Cotton, rice, silk, and attar of roses are important productions. In 1905 there were 2,167,275 cattle, 8,081,816 sheep, 536,616

horses, 124,216 asses, 11,828 mules, 1,370,201 goats, and 463,241 swine.

The government coal mines at Pernik yielded 161,000 tons in 1906. The state is the owner of all minerals. Iron in large quantities, gold, silver, lead, manganese, and copper are found. About 1,000,000 cubic metres of stone are quarried annually. Woolen goods, cottons, cord, and cigarettes are manufactured.

COMMERCE. The total imports in 1908 were valued at 130,150,000 leva (1 lev = 19.3 cents), against 124,661,000 leva in 1907; exports 112,357,000 leva, against 125,595,000 in 1907. The principal articles of commerce in 1908 were as follows:

Exports	Leva
Cereals	75,975,000
Animal food products	10,683,000
Live-stock	6,437,000
Textiles	6,461,000
Perfumes	4,265,000
Skins, etc.	3,757,000
Timber, etc.	555,000
Drugs, chemicals, etc.	227,000
Imports	Leva
Textiles	39,969,000
Metals and metal articles	16,531,000
Machinery and implements	11,152,000
Colonial products	6,785,000
Skins, etc.	5,888,000
Timber, etc.	5,671,000
Drugs, chemicals, etc.	4,400,000
Stone and glass	4,308,000

The principal countries of origin and destination were (1908) as follows: Austria-Hungary, imports and exports, 35,540,000 and 6,346,000 leva respectively; Great Britain, 23,202,000 and 9,680,000; Germany, 20,847,000 and 11,626,000; Turkey, 19,153,000 and 33,482,000; France, 7,023,000 and 6,210,000; Russia, 5,635,000 and 247,000.

COMMUNICATIONS. Railways in operation in 1909 had a total length of 1053 miles, belonging to the state; under construction, 280 miles. The length of state telegraph lines (1908) was 3688 miles; offices, 295; messages transmitted, 1,700,203. There were 2053 post-offices in 1908. In 1908 15,070 vessels of 3,391,425 tons entered, and 15,039 of 3,379,179 tons cleared.

FINANCE. The unit of value is the lev, worth 19.3 cents. The revenue and expenditure in 1907 amounted to 149,515,231 and 115,658,812 leva respectively. The budget for 1908 balanced at 127,235,700 leva. The revenue and expenditure for 1909 were estimated at 153,169,450 and 153,097,088 leva respectively. The sources of estimated revenue were given as follows: Customs and excise, 52,195,000 leva; direct taxes, 43,910,000; transportation dues, 19,250,000; public domains and various internal revenues, 10,713,000; state franchises, 8,485,000; taxes, 7,825,000; fines, 940,000; additional, 6,225,000. Expenditure: war, 38,510,343; public debt, 32,989,731; public works, 23,305,008; instruction, 18,273,482; interior, 9,142,374; commerce and agriculture, 8,516,617; finance, 8,284,478; foreign affairs, 5,865,847; justice, 5,166,218; higher administration, 1,462,090; civil list, 1,250,000; court of accounts, 330,900. The net debt outstanding January 1, 1909, was 402,075,184 leva. The National Bank of Bulgaria has headquarters at Sofia, with branches at Philippopolis, Rustchuk, Var-

na, Buezas, and Tirnovo. Its capital is 10,000,000 leva; reserve fund, 3,333,333. It issues both gold and silver notes, which circulate at par. A German, a French, and an Austro-Hungarian bank have headquarters at Sofia. There are 120 agricultural banks, with a collective capital of 35,962,928 leva.

NAVY. The navy includes 6 first-class torpedo boats, 2 other torpedo boats, 1 transport, 2 yachts, 1 cruiser of 735 tons. The personnel consists of about 1130 officers and men.

ARMY. The Bulgarian army was one that interested military critics and in 1909 was at a high point of efficiency and readiness for actual service, being compared more than favorably with the majority of European armies. It had a thoroughly organized staff and exceptionally well trained artillery armed with Schneider-Cunet field guns and Krupp mountain guns. An excellent military school for the training of officers is maintained at Sofia. Military service is universal and compulsory between the ages of 18 and 40, two years being required with the colors in the infantry and three in the cavalry and artillery and a reserve service of 18 and 16 years for the infantry and other arms respectively. Thus there are available annually about 80,000 young men, and of these 24,000 are absorbed, while a large reserve is secured available for rapid mobilization, it being understood that an army of 380,000 men and some 425 guns could be put into the field within ten days. In 1909 the military establishment, not entirely complete, consisted of 3521 officers and 54,146 men. The army is divided into nine divisions, with headquarters at Sofia, Schumla, Bustchuk, Vratza, Dubnitsa, Eskizagora, and Plevna. Each division embraces 2 brigades, each containing 4 regiments and generally 9 batteries. Six divisions have cavalry regiments, and in addition to the excellent artillery armament mentioned the troops are supplied with the Mannlicher rifle and carbine and the equipment for the transport and the technical troops is of the highest grade. The military expenditure in 1909 was £1,536,414.

GOVERNMENT. Bulgaria has been an independent monarchy since October 5, 1908, when Prince Ferdinand assumed the title of Czar of the Bulgarians. Eastern Rumelia is now an integral part of Bulgaria, under the administration at Sofia, now the only capital. The executive authority rests in the Czar, acting through a council of eight ministers. The legislative power is vested in a single chamber (the Sobranjé, or National Assembly), whose members number one to every 20,000 of the population, and who are elected by universal manhood suffrage. The Czar in 1909 was Ferdinand, born February 26, 1861; married (1), April 20, 1893, to Marie Louise of Parma, and (2) February 28, 1908, to Eleonore of Reuss Köstritz. Heir apparent, Prince Boris, born January 30, 1894. The ministry in 1909 was composed as follows: President of the Council and Minister of Public Works, Al. Malinoff; Foreign Affairs, Lieutenant-General S. Paprikoff; Interior, M. Takeff; Finance, J. Sallabacheff; Public Instruction, M. Mushanoff; Justice, Dr. T. Kreteff; War, General Nicolaieff;

HISTORY. The chief event during the year was the recognition of Bulgaria's independence. For an account of Ferdinand's policy and Bulgaria's relations with Austria, Turkey and Russia see the article BALKAN QUESTION, where

also will be found an account of Bulgaria's agreement with Turkey as to the indemnity. After the conclusion of this agreement (April 19) the King received congratulations and telegrams from the crowned heads of the great Powers recognizing the independence of Bulgaria. On October 5 the latter entered Sofia for the celebration of the anniversary of Bulgaria's independence. A convention was signed between the Bulgarian government and the Oriental Railways Company on January 28. (See **TURKEY**, paragraphs on *History*.) The first session of the Sobranje closed on February 13. One of its legislative measures was the passage of a tax on bachelors over thirty years of age, from which it was estimated that the proceeds would be 250,000 leva. The budget voted called for an outlay of about \$31,000,000, the largest ever adopted by Parliament. On October 24 King Ferdinand started on a visit to Servia, which was welcomed as a sign that cordial relations between the two countries would be restored. On the opening of the second session of the Sobranje, the King referred with gratitude to the sympathy of Russia and to the efforts of the Powers in 1908 toward securing the recognition of Bulgarian independence. On December 1 Bulgaria and Turkey signed an agreement for the change of their respective commercial agencies into consulates subject to international law.

BULL, WILLIAM TILLINGHAST, M. D. An American surgeon, died February 22, 1909. He was born at Newport, R. I., in 1849 and graduated from Harvard University in 1869. He studied at the New York College of Physicians and Surgeons and in Europe. In 1875 he began the practice of medicine in New York City. He was demonstrator and consulting surgeon in several hospitals in that city, and from 1889 was professor of the practice of surgery in the College of Physicians and Surgeons. Dr. Bull was one of the most eminent surgeons in the United States. He was one of the pioneers in operating for appendicitis, and was an especial authority on cancer. It was by this disease that he came to his death.

BÜLOW. BERNHARD, PRINCE VON. A German statesman, born 1849, and from 1900 to July 14, 1909, Chancellor of the German Empire. He was born at Klein-Flottbeck, Holstein. After studying in the Universities of Leipzig and Berlin and serving in the Franco-Prussian War, he entered the German Foreign Office in 1874. He served as secretary of legation at Rome, St. Petersburg and Vienna, and was *Chargé d'Affaires* at Athens during the Russo-Turkish war of 1877-8. After further diplomatic service in St. Petersburg and Paris he was appointed Minister to Rumania in 1888, and became ambassador to Italy in 1893. In 1897 he was made Foreign Secretary, and in 1899 made the treaty with Spain which gained for Germany the Caroline, Pelew and Ladrone Islands. For this service he was made a count. In 1900 he succeeded Prince Hohenlohe-Schillingfurst as Chancellor of the empire and Prime Minister of Prussia in 1900. Von Bülow was considered the strongest Chancellor since Bismarck. His chief endeavors were toward the strengthening of German influence. In 1905 he began a campaign against the ambitions of France in Morocco, which resulted in the fall of the French Foreign Minister, Delcassé, and the meeting of the Algeiras Conference in 1906.

He was given the rank of Prince in 1905. Although von Bülow was in almost uniform sympathy with the designs and policies of Wilhelm II, he did not hesitate to deliver to his imperial master a studied rebuke, when he declared, before the Reichstag, in 1908, that if the former were not more careful in his public utterances he (von Bülow) could not continue to hold his office. Relations between the Emperor and his Chancellor were reported to be strained, despite the outward signs of harmony. Von Bülow was in favor of a large German army, but constantly declared that it was not for aggression but for defense. For the circumstances of his resignation see the article **GERMANY**, paragraphs *History*.

BUREAU OF AMERICAN ETHNOLOGY. See **ANTHROPOLOGY**.

BUREAU OF AMERICAN REPUBLICS, INTERNATIONAL. See **REPUBLICS, INTERNATIONAL BUREAU OF AMERICAN**.

BUREAU OF ANIMAL INDUSTRY. See **MEAT AND MEAT INSPECTION**.

BURKE, JOHN MASTERSON. An American merchant and philanthropist, died December 2, 1909. He was born in New York City in 1812. At the age of 16 years he went to work for a shipping and trading firm. Early in his twenties he was able to start in business for himself. One of his first ventures was the chartering of a ship loaded with various merchandise for South America. He was successful in business and by the time he was 50 years old he had established himself as one of the leading traders in the country. He retired from business in 1870 and thereafter devoted himself to the investment of his property. In 1902 he conveyed to a corporation composed of five well-known men in New York, \$4,000,000, to be spent in caring for worthy poor and in providing maintenance for poor persons during convalescence. This corporation he named the Winifred Masterson Burke Relief Association in memory of his mother. By the death of Mr. Burke the entire sum of \$4,000,000 became available for a Convalescents' Home.

BURMA. A province of British India lying to the north and east of the Bay of Bengal. (See **INDIA, BRITISH**.) In 1906 the Rangoon government had complained to the home authorities against rigorous treatment, especially in the matter of the expropriation of the rents of reclaimed land. The acts of which complaint were made were the expression of the policy consistently pursued toward Rangoon since 1894. In September it was announced that Lord Morley had reversed this policy on consideration of Rangoon's complaints and had decided to appropriate to the city the sum of £20,000 annually for public works and more if the rents were remitted, and to cancel the orders requiring Rangoon to pay the full market value for land needed for public purposes; also to pay a part of the taxes for the reclaimed areas.

BURNÉ, SIR OWEN TUDOR. An English major-general, died June 27, 1909. He was born at Plymouth in 1837. He was educated at Sandhurst, and was gazetted to the Twentieth Regiment. The Crimean War ended just too soon for him to see service, but in 1857 he reached India during the progress of the great mutiny. He was in fifteen actions, including

the final siege and capture of Lucknow. For gallant service he was recommended for the Victoria Cross. In 1860 he became military secretary to Sir Hugh Rose, the commander-in-chief. He resigned this post within a year and became private secretary to the Earl of Mayo, with whom he went to Ireland. Returning to India in 1868 as private secretary to Lord Mayo, he was a witness to the murder of the latter by a Pathan convict in 1872. From 1874 to 1887 he was secretary to the Political and Secret Department, India Office. In 1887 he became a member of the Council of India, serving until 1897.

BURT, GEORGE ALBERT. An American railway and public official, died March 11, 1909. He was born in Fall River, Mass., in 1846. During the Civil War he served as ensign of the United States frigate, *Massasoit*. Following the war he became Vice-Consul in Guatemala, and later, general manager of the Panama Railway. During the insurrection in Panama in 1895, Burt telegraphed to President Cleveland as follows: "Unless you guarantee sufficient protection I shall withdraw every American citizen and proceed to the United States in a chartered vessel." Warships were at once sent to the Isthmus, where Burt had organized the employees of the railroad in defense of property and the women and children of the American and foreign residents. For this he received the official recognition of the British, French, Spanish and other governments. Subsequently he became general manager of the Brazilian Mail Steamship Co., and during the Brazilian revolution he fitted up an expedition from New York to Brazil. He, with Morris B. Flinn and C. F. Sprague, built the first electric railroad in the United States, at Richmond, Va.

BURTON, FREDERICK RUSSELL. An American composer and writer, died September 30, 1909. He was born at Jonesville, Mich., in 1861, and graduated from Harvard in 1882 with the highest honors in music. He engaged in newspaper work and in the writing of music. He took great interest in the subject of Indian music and having made a careful study of this he became enthusiastic as to its possibilities. In order to secure money to continue his research he at one time took a company of Indians around the United States and to Europe, but the scheme failed and he was obliged to ship the Indians home and take up newspaper work in London to pay his own way home. At the same time, however, he worked on a book of Indian music, which was completed under the title *American Indian Songs*. He wrote also a novel on Indian life entitled *Red Cloud*. His most important work was the Indian cantata, *Hiauwatha*, which was produced in 1898. This was successful and at once made him a well-known figure in the musical world both at home and abroad. In addition to his Indian music he was the author of several novels and a number of essays and short stories. He composed also the cantata, *Legend of Sleepy Hollow*, and various songs and choruses. He was for many years on the staff of the *New York Sun*. A posthumous work, *American Primitive Music*, was published in 1909.

BURTON, MICHAEL ARTHUR (BASS), BARON. An English brewer and philanthropist, died on January 25. He was born in 1837, and

was educated at Harrow and Trinity College, Cambridge. He became head of the great brewing firm of Bass, Ratcliff and Gretton, of which his grandfather was the founder. Lord Burton gave large sums of money for philanthropic and other purposes.

BURTON, THEODORE ELIJAH. An American public official, United States Senator from Ohio. He was born in Jefferson county, Ohio, in 1851, and graduated from Oberlin College in 1872. He was admitted to the bar in 1875 and from that time practiced law in Cleveland. From 1889-91 and from 1895 to 1909 he was a Member of Congress. He was appointed by President Roosevelt chairman of the Inland Waterways Commission in 1907, and in the same year was the Republican nominee for Mayor of Cleveland against Tom L. Johnson. Although he had the strong support of President Roosevelt, he was defeated. He was elected United States Senator to succeed Joseph B. Foraker on January 13. Senator Burton during his service in Congress was considered to be one of the most efficient and capable members of that body.

BUSH, THOMAS GREENE. An American ironmaster and philanthropist, died November 11, 1909. He was born in Alabama in 1847 and served in the Confederate army. During the service he was taken a prisoner by the Union forces. He was a member of the Monetary Commission created at the Indianapolis Conference in 1897 and was also a trustee of the Nobel Foundation Fund for the Promotion of Industrial Peace, appointed by President Roosevelt. He was president of the Shelby Iron Co. and many other important industrial companies in the South.

BUTLER, ARTHUR GRAY. An English clergyman and educator, died January 16, 1909. He was born at Northants, August 19, 1831. He was educated at Rugby and University College, Oxford. After service as assistant master he was head master of Haileybury College from 1862 to 1867. From 1875 to 1895 he was a tutor at Oriel College, Oxford. He was a select Preacher at Oxford, and took an active interest in economic and social questions. He wrote *Charles I.; a Drama* (1874); *Harold; a Drama; Choice of Achilles and Other Poems* (1900); *Hodge and His Land* (1907).

BUTLER, JOHN GEORGE. An American Lutheran clergyman, died August 2, 1909. He was born in Cumberland, Md., in 1826 and was educated at Allegheny Academy, Pennsylvania College and the Theological Seminary at Gettysburg, Pa. From 1849 to 1873 he was pastor of St. Luke's English Lutheran Church in Washington, and from 1873 to the time of his death was pastor of the Luther Place Memorial Church. He was one of the first hospital chaplains appointed by President Lincoln and he served throughout the Civil War in and about Washington. He was chaplain of the United States House of Representatives from 1869 to 1875 and was also for several years chaplain of the United States Senate. He was for nearly thirty years professor of homiletics and church history at Howard University. He was editor of the *Lutheran Evangelist*.

BUTLER, MATTHEW CALBRAITH. An American lawyer, former Senator from South Carolina, died April 14, 1909. He was born near Greenville, S. C., in 1836, and attended the

South Carolina College from 1853 to 1856. In the latter year he was admitted to the bar. He was elected to the State Legislature in 1859. He served in the Confederate army during the Civil War, rising from the rank of captain to that of major-general. In the battle of Brandy Station, in 1863, he lost his right leg. He was elected to the State Legislature in 1866, and from 1877 to 1889 he was United States Senator. He served in the Spanish-American War as major-general of volunteers, and at its close was appointed a member of the commission to assist the Spanish government in evacuating Cuba. He declined the offer of President McKinley to retire as an army officer.

BUTTER. See DAIRYING.

CABELL, BENJAMIN FRANCIS. An American educator, died September 20, 1909. He was born in Campbellsville, Ky., in 1850, and was educated in the public schools of Bedford, Indiana, and Wesleyan University, Delaware, Ohio. In 1875 he was professor in Warren College (now Ogden College), Bowling Green, Ky. In 1877 he was elected president of Cedar Bluff College, Ky., and in 1889 was chosen president of Potter College, which position he held at the time of his death.

CALHOUN, WILLIAM JAMES. An American lawyer and diplomat, appointed in December, 1909, Minister to China. He was born in Pittsburg, Pa., in 1848 and received an academic education in Poland, Ohio. He was admitted to the bar in 1875 and practiced law at Danville, Ill. From 1898 to 1900 he was a member of the Interstate Commerce Commission. He engaged actively in politics and in 1896 took a prominent part in the campaign in behalf of President McKinley. Largely through his efforts Illinois cast its vote for President McKinley in the National Convention. In 1905 he was selected as a special commissioner to Venezuela to investigate the conditions in that country. His report has formed the basis for American action ever since in maintaining the principle of the Monroe Doctrine.

CALIFORNIA. One of the Pacific Coast States of the United States. Its total area is 158,297 square miles, of which 2205 square miles are water. In 1900 the population was 1,485,000. According to an estimate made in 1909 by the Federal government the population was 1,729,543. The capital is Sacramento.

MINERAL PRODUCTION. California is one of the most important States in its production of minerals. As a producer of gold it has been notable since the discovery of gold in 1848. Although the yearly production has fallen off from the great totals of the first fifteen or twenty years, it shows a remarkable even rate in the value of the gold produced. The amount produced in 1908 was the largest in point of value of the last ten years, excepting that of 1905, which heretofore was the banner year of that period. The production in 1908 was 935,074 fine ounces, valued at \$19,329,700, a substantial increase over the product of 1907, which was 815,288 fine ounces, valued at \$16,853,500. In the production of gold California is outranked only by Colorado. The silver produced in 1908 was a considerable increase over the amount produced in 1907. The price of silver, however, resulted in the product of 1908

being considerably less in value than that of 1907. The comparative figures were as follows: 1908, 1,703,700 fine ounces, valued at \$911,300; 1907, 1,590,000 fine ounces, valued at \$1,049,400. The production of copper has shown a marked increase in the past few years, and the product of 1908 showed a considerable increase over that of 1907, although as in the case of silver, the lower price of the metal decreased the value of the product from that of the previous year. The comparative figures are as follows: 1908, 39,643,835 pounds, valued at \$5,232,986; 1907, 33,696,602 pounds, valued at \$6,739,320. Almost the entire quicksilver product of the country comes from California. In 1908 there were produced 16,984 flasks, valued at \$684,716, as compared with 17,431 flasks, valued at \$662,544 in 1907. The decrease in the hydraulic mining of gold and the decreased amount of gold and silver required by amalgamation process, together with the increased tendency to ship ores of the precious metals to smelters, have decreased the local demand for quicksilver. California ranked second in quantity and first in value among the States producing petroleum in 1908. The value of the oil production in 1908 exceeded that of any other mineral product. The total production was 44,854,737 barrels, valued at \$23,433,502, as compared with 39,748,375 barrels, valued at \$14,699,976, in 1907. With one exception every district in the State increased in production during the year. This condition was brought about by the increasing demand and consequent high prices of oil, which stimulated drilling. The completion of the pipe line in 1907 and the completion of the railroad to Midway, together with the construction of the new pipe line of the Associated Oil Company from Kern River to tidewater in 1908, did much to encourage drilling and increase production. More crude oil was shipped from the fields of Southern California in 1908 than ever before. The greater part of the oil exported from California comes from the Santa Maria field, its situation giving it command of the coast trade from Alaska to Chile and of the foreign trade with Japan and Hawaii. No new oil fields of importance were discovered in 1908, though petroleum was discovered in several places, one being in Mono county near Mono Lake. The production of mineral waters was an important industry in the State in 1908. 1,960,770 gallons, valued at \$499,872, were sold, as compared with 1,680,169 gallons, valued at \$460,972, in 1907. The stone products of the State in 1908 were valued at \$3,291,585, as compared with \$3,134,429 in 1907. California is one of the most important of the States producing salt. The production in 1908 was 899,028 barrels, valued at \$374,828, as compared with 626,693, valued at \$302,940, in 1907. A great portion of the asphalt produced in the United States is derived from California. The product in 1908 was 135,241 short tons, valued at \$1,347,257, as compared with 131,068 short tons, valued at \$1,213,957, in 1907. Other important products were borax, clay products, natural gas, and lead. Precious stones are mined more extensively in California than in any other State. The total value of the mineral products of the State in 1908 was \$65,137,636, a considerable increase over the value of the product of 1907, which was \$56,679,436. The gold production of 1909 was estimated

by the Director of the Mint at 1,029,000 fine ounces, valued at \$21,371,300. This was a gain of \$1,941,600 over the production of 1908. The silver production in 1909 was 1,705,200 fine ounces, valued at \$887,000.

The copper output of 1909 showed a considerable increase over that of 1908.

California ranked first in the oil production of 1909, producing fully ten million barrels more than Oklahoma, which ranked second. The developments begun in 1908 continued with increasing rapidity in 1909, and many sections produced wells of large capacity. One of the most important events of the year was the drilling of the Silver Tip well, on section 6, Coalinga field. This is said to be, with the possible exception of the Hartnell well of the Union Oil Co., drilled at Santa Maria in 1904, the greatest well ever drilled in the State. Other important developments extended the Coalinga field to the west and south during the year. During 1909 several pipe lines were under construction to carry the increased product, and although no exact statement could be made at the end of the year, there was undoubtedly a very substantial gain over the output of 1908, and a satisfactory increase in price.

According to the figures given by the *Engineering and Mining Journal*, California produced in 1909 58,250,300 barrels of crude petroleum. This represents an increased output of 13,250,300 barrels. The Coalinga field was the largest producer in the State. During December a record production of 5,300,000 barrels was made, the number of producing wells being about 4000.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal crops in the State in 1909, according to the figures of the United States Department of Agriculture, were as follows: Corn, 1,740,000 bushels, valued at \$1,583,000, from 50,000 acres; winter wheat, 11,550,000 bushels, valued at \$12,820,000, from 825,000 acres; oats, 6,280,000 bushels, valued at \$4,145,000, from 200,000 acres; barley, 31,270,000 bushels, valued at \$23,140,000, from 1,180,000 acres; rye, 842,000 bushels, valued at \$876,000, from 61,000 acres; potatoes, 7,800,000 bushels, valued at \$6,006,000, from 60,000 acres; hay, 1,105,000 tons, valued at \$12,708,000, from 650,000 acres. The production of corn increased slightly over the product of 1908, which was 1,600,000 bushels. There was a considerable increase in the production of barley over 1908. In the latter year, 25,427,000 bushels were produced. The State ranks second in the production of this commodity, being surpassed only by Minnesota. The rye crop showed an increase in 1909 over the product of 1908. In the latter year 792,000 bushels were produced. The potato crop showed an increase of over 2,000,000 bushels over 1908. In the latter year there were produced 5,243,000 bushels. The hay crop also was considerably larger in 1909 than in the previous year, when it was 817,000 tons. The production of citrus fruits has steadily increased in the last few years. This State ranks second in the production of beet sugar. The number of farm animals on January 1, 1910, was as follows: Horses, 420,000; mules, 83,000; milch cows, 452,000; other cattle, 1,120,000; sheep, 2,372,000; swine, 540,000. In recent years there has been a decrease in the number of sheep. The wool clipped in 1909 was 10,269,280 pounds.

EDUCATION. The total enrollment in the schools of the State for the year ending June 30, 1909, was 349,145. Of these 180,481 were boys and 170,664 were girls. The enrollment in the elementary schools was 311,089, of which 162,321 were boys and 148,768 were girls. In the high schools were 34,298 pupils, of whom 15,386 were boys and 18,912 were girls. In the kindergarten schools were enrolled 5758 pupils, 2984 being girls and 2774 boys. The total number of teachers was 10,769, of whom 1466 were men and 9303 were women. In the elementary schools there were 900 men and 8200 women teachers, and in the kindergarten 179 women teachers. In the high schools of the State were 566 men and 924 women teachers. The valuation of the school property in the State was \$38,666,761, of which \$30,718,246 was elementary schools; \$7,933,560 high schools and \$14,955 kindergartens. The total expenditures for education amounted to \$15,985,255, of which \$12,734,320 was expended for elementary schools, \$3,119,886 for high schools, and \$131,048 for kindergartens. The high schools of the State have made great gains in the last few years, since the provision for State aid to each school.

FINANCE. According to the biennial report of the State Treasurer for the years ending July 1, 1906, and July 1, 1908, there was a balance at the close of the fiscal year ending June 30, 1907, of \$7,149,904. The receipts during the fiscal year ended June 30, 1908, were \$15,514,801. The expenditures for the same period were \$15,359,659, leaving a balance on hand June 30, 1908, of \$7,305,045. The State trust funds on deposit in banks on June 30, 1908, amounted to \$3,668,150. The legislature in the session of 1907 passed an act permitting the deposit in banks of money belonging to the State. The amount of interest on deposits collected to June 30, 1908, was \$8890, and the amount of deposits at the end of the year was \$4,257,350.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions under State control included the State Prison at San Quentin, the State Prison at Folsom, the Preston School of Industry, the Whittier State School, these being State reform schools, the Stockton State Hospital for Insane, the Napa State Hospital, Agnews State Hospital, the Mendocino State Hospital, the Southern California State Hospital, Home for the Care and Training of Feeble Minded Children at Eldredge, the Institution for the Deaf and Blind at Oakland, the Industrial Home for the Adult Blind at Oakland, and the various county houses and asylums. The total enrollment in the State prisons on June 30, 1908, was 2612, in the State reform schools, 977, in the State hospitals for insane, 6033. The number of inmates in all the State institutions on June 30, 1908, was 10,642. The expenditures for these institutions amounted to \$2,343,749.

POLITICS AND GOVERNMENT. The chief political interest of the year centred about the attempt to pass through the legislature certain measures antagonistic to the Japanese. These included proposals to forbid Japanese aliens to hold land, to segregate them into quarters of their own, and to forbid their becoming members of California corporations; and provisions for the segregation of Japanese children in separate schools. These measures were introduced

early in the session and at once drew the attention of President Roosevelt, who became greatly concerned over their possible passage. He sent, on January 18, a telegram and a letter to Governor Gillett, seeking to enlist his efforts in a plan to prevent the anti-Japanese legislation. The President took the stand that under the agreement entered into between the American and Japanese governments in 1908, 2000 more Japanese had left the United States than had come into it. He expressed himself as emphatically opposed to discriminatory legislation. On receipt of the President's telegram, Governor Gillett at once took measures to hold up the bills and notified President Roosevelt to that effect. Governor Gillett on January 26 sent a special message to the legislature urging the members of that body to take no further action on the anti-Japanese bills, because such legislation would seriously embarrass the United States government in its dealings with Japan. He suggested that before any action be taken on the bills, the legislature instruct the Labor Commissioner to make an accurate census of the Japanese in California. If it was found that coolie labor from Japan continued to pour into the State, he said, then it would be soon enough to take such action as is proper, and by legislation remedy the conditions. The Governor called the attention of the legislature to the fact that no law which the State could enact would prevent Japanese immigration, as Congress alone is vested with power to pass such legislation. In accordance with a request of the Governor, the legislature voted on January 27 to postpone all action on the bills for another week. This was due in a measure to the fact that the Governor intimated in his message of January 26, that he would veto any of these bills if they should be passed. Governor Gillett on the same day received a telegram from President Roosevelt saying that the alien land bill was the only measure that would be approved by the administration, and asking him to use his influence in securing delay. On January 27 Senator Mark Anthony introduced a joint resolution calling upon Congress to request that the Japanese Consul in San Francisco be recalled by his government, because he had attempted to influence the action of the California Legislature in calling upon Governor Gillett and asking him to prevent the passage of Japanese bills then pending. No action was taken on this resolution.

In spite of the efforts of President Roosevelt and Governor Gillett to prevent their passage, the Assembly, on February 1, voted to make a special order for the passage of the bill on the following Wednesday. An effort was made to kill the bill, but the vote stood 33 to 17 to consider it. The bill was somewhat amended in that all reference to Japanese was eliminated and provision was made that aliens should be able to hold land on five year leases, but not to acquire any land by deed. When the bill came up for passage on February 3, in the Assembly, it was defeated by a vote of 48 to 28, in spite of the strong effort of its supporters to have it passed. This action of the legislature did not, however, put an end to the attempts to pass anti-Japanese legislation. The bill excluding Japanese children from public schools next came up for passage, and President Roosevelt sent Governor Gillett another tele-

gram inquiring if the rumor was true that the legislature had passed the bill, and declaring that this was the most offensive measure of all, and in his judgment clearly unconstitutional. The bill had passed the Assembly on February 4, although bills providing that Japanese must live within restricted districts, and prohibiting aliens from being members of corporations doing business within the State had been defeated. Governor Gillett sent to the legislature a second special message urging a reconsideration of the anti-Japanese school bill. The Speaker of the House, Philip A. Stanton, also made a strong appeal for reconsideration. As a result of these measures, unanimous consent of the Assembly to postpone further action until the following Wednesday was secured. While the matter was pending in the Assembly, State Senator Caminetti transferred the seat of disturbance to the Senate by introducing on February 6 practically the same bill that had been introduced into the House, disguised as an educational measure. He also succeeded in having it referred to the Committee on Education, of which he was an important member, instead of the Committee on Federal Relations, to which it would naturally have gone. President Roosevelt, on February 8, called a conference at the White House, at which were present Robert Bacon, Secretary of State, Senator Flint and Representative Kahn, of California, and Franklin K. Lane, of the Interstate Commerce Commission, who is also a Californian. The President made it clear that he wished to stir up as strong a public sentiment as possible, and to enlist the strongest individual influences to prevent action of the General Assembly directed toward Japanese immigrants and residents. Later in the same day he sent a telegram to the Speaker of the Assembly in which he again pointed out the importance of preventing the passage of measures which would embitter the friendly relations between the United States and Japan. He pointed out again the excellent results which had come from the policy previously adopted in relation to the Japanese, under which more had left the country than had come into it. He declared that such a bill as this school bill could accomplish nothing whatever in the object aimed at, but would give just and grave causes for irritation, while in addition the United States government would be obliged immediately to take action in the Federal Court to test such resolution. On February 10, after one of the strongest debates ever known in the State Capitol, the Assembly, by a vote of 43 to 34, voted to reconsider the bill providing for segregating Japanese pupils in public schools, and on the final vote on the passage of the bill, killed it by a vote of 41 to 37. The strong support of the bill was said to have been due mainly to President Roosevelt's interference in State affairs. After the school bill had been killed, Representative Johnson called up his motion to reconsider the vote by which the anti-alien land bill was lost. This was voted down and this finally disposed of all the anti-Japanese bills in the Assembly. The bill introduced into the Senate by Senator Caminetti was also killed. On February 4 the Senate passed a bill providing for a census of the Japanese in the State to determine whether California should act for a general Asiatic exclusion act.

Municipal conditions in Los Angeles attracted more than local attention in the early part of the year. In February several radical changes were adopted in the city charter. These gave the city power to construct and operate utilities employing electricity as it previously had power over utilities employing water and gas. A new form of legislative council was adopted by which every councilman has a share in representing the city at large and regards his constituents, not as a group, but as a great body of citizens jointly undertaking to manage their common affairs. The citizens also decided that hereafter nominations for municipal officers should be made by petition and without party designation. Mayor Harper and certain members of the police department had, in 1908, been charged with serious offenses, and on February 10 the grand jury submitted a report strongly censuring the Mayor and a part of the police commission for failure to enforce the laws against vice. No indictments, however, were returned, because the conditions criticised had been remedied since the beginning of the investigation. The Mayor in the meantime had placed at the head of the Board of Public Works, which is to have control of the expenditure of some \$30,000,000 within the next four years, the man who was then Chief of Police. A strong protest arose against his appointment and a campaign was begun for the recall of the Mayor in accordance with the provisions of the charter governing the city which provided for such action. Enough signatures were secured on the petition for the recall election. On March 9, the man whom the Mayor had placed on the Board of Public Works resigned, and two days later Mayor Harper himself withdrew, not only from the campaign, but from the mayor's office. He immediately left the city, leaving it without an executive officer. His resignation was said to have been the result of the threatened publication of facts concerning his private life, which were to be made known in case he refused to resign his office. A candidate for the mayoralty had been nominated, but he was not favored by a majority of the City Council. The Republican organization demanded the election of George A. Smith for the rest of the term for which Mr. Harper had been elected. It was urged, on the other hand, that by virtue of the recall proceedings a new election was to take place in any case on March 26, and therefore the Council only had the right to fill the interim. At the advice of the City Attorney, the Council followed the latter course, and William B. Stevens filled the office for a term of eleven days. On March 26 George Alexander was elected Mayor to succeed Mayor Harper. This was the most important and interesting test to which the recall system has been put in any State.

The legislature on March 27 passed the Wright-Stanton direct nominations bill in accordance with which hereafter nominations of party candidates will be made by petitions of the party voters. This bill puts into effect an amendment of the State Constitution, which was adopted by a large popular majority in 1907. See ELECTORAL REFORM.

On January 12, George C. Perkins was elected to the United States Senate by the legislature. He received the votes of all the 49 Republicans in the Senate and 56 of the 60

Republican Assemblymen. The Democrats in the legislature voted for J. O. Davis, of Hollister. Measures were passed by the legislature providing for the abolition of race-track gambling, and also for the prohibition of slot machines in San Francisco after July 1, 1909.

On May 3, in an opinion handed down by Judge Ross of the United States Circuit Court of Appeals, it was held that the \$330,000 fine against the Santa Fe Railroad Company was not valid. The case was remanded for new trial. The government brought action against the railroad company for giving rebates to the Grand Cañon Lime and Cement Company. Sixty-six cases of rebating were established by the government, and a fine of \$5000 on each count was assessed. Judge Ross held that the statute expressly forbids departure from the legal rate when wilfully made, hence the question of intent entered into the charge made in the indictment. That being so, it necessarily resulted that the lower court was in error in withholding from the jury evidence that more or less lime shook out in handling.

On April 5, the city of San Diego voted for license. On January 29, the Supreme Court held that the primary law of the State was constitutional.

SAN FRANCISCO. The prosecution against city officials and others for alleged corruption continued during the year, but it was probably brought to a close, at least for the time being, as a result of the election on November 2, which voiced strong public opinion against further prosecution of these cases. The prosecutions had their beginnings in November, 1905, when Francis J. Heney, who had been employed by Rudolph Spreckels as special investigator of municipal affairs in San Francisco, charged in a public address that Mayor Schmitz, and Abraham Ruef, political leader of the city, were guilty of corruption. Under Heney's supervision, W. J. Burns, formerly a government secret service agent, undertook an investigation of the privileges awarded several public service corporations. Ruef and Schmitz were indicted on the charge of extorting money from French restaurant proprietors in 1906, after Ruef had failed in an effort to seize the District Attorney's office through his appointment by the Board of Supervisors. Mr. Heney had, in the meantime, been appointed by the District Attorney an Assistant District Attorney to prosecute these cases. The graft investigation was conducted secretly for several months following, but in the early part of March, 1907, Burns succeeded in trapping several of the supervisors in the act of accepting money from a skating rink proprietor, who was acting in the interests of the prosecution. Within a week eighteen supervisors had confessed their acceptance of money from six sources. It was subsequently announced that the supervisors had been promised immunity for their testimony against the men charged with offering bribes. A grand jury, impaneled under the direction of Mr. Heney in October, 1906, heard the confession of the supervisors on March 19, 1907, and in forty-eight hours returned more than 300 indictments against various persons charged with complicity in offering bribes. Patrick Calhoun, President of the United Railroads, was indicted, together with Abraham Ruef and three subordinate officials of the United Railroad on fourteen counts, three of which were re-

turned by a later grand jury. It was charged that the corporation had secured from the supervisors on May 21, 1906, a permit, authorizing the substitution of an overhead trolley system for the cable lines partially destroyed by the earthquake and fire of April 18, 1906. Mr. Calhoun and the other defendants were accused of having paid Ruef, Schmitz, and the supervisors, \$200,000 for their services in securing the permit from the company and each indictment was based upon the money received by one of the supervisors. Tirey L. Ford, General Counsel for the United Railways, was also implicated by the indictments and was tried three times. In the first trial a disagreement resulted, and in two subsequent trials, Ford was acquitted. Mayor Schmitz was convicted on June 13, 1907, and was sentenced to five years' imprisonment in the State Penitentiary. He was found guilty on evidence that he had shared in fees paid to Ruef by the proprietors of certain restaurants in return for which they were permitted to carry on illegitimate business. On January 9, 1908, three justices of the District Court of Appeals reversed the conviction on the ground that the compelling of the French restaurants to pay these fees by Ruef was not a crime, according to the laws of the State, even though he shared them with Schmitz. The sentence was set aside, also on other grounds. The effect of this decision was to invalidate the four remaining charges of extortion against Ruef and Schmitz, and to render void the confession made by Ruef, as the facts that he had confessed were decided not to be criminal. There still remained against Schmitz about forty indictments for bribery, and against Ruef 126 indictments charging the same crime. The State Supreme Court on March 9, 1908, refused to grant a rehearing and affirmed the decisions of the Appellate Court that the offense charged was not a felony in the legal sense. On March 21, the remaining indictments for extortion pending against Schmitz were dismissed, and he was released on bail, awaiting trial on other charges. The first trial of Ruef also failed on this technicality. He was brought to trial on another indictment on August 27, 1908. On November 13 the trial was interrupted for several days by the shooting of Francis J. Heney in the court room by an ex-convict, who afterwards committed suicide in the county jail. Three volunteer prosecutors then took up the case and on December 10, 1908, the jury returned a verdict of guilty. On December 29, Ruef was sentenced to fourteen years in the San Quentin penitentiary, and since that time he has been confined in the county jail, awaiting action on appeal.

The prosecution had attempted to prove that Patrick Calhoun on the day following the final passage of the permit for the overhead trolley, sent from New York to the Mint in San Francisco \$200,000, which he authorized the Mint officials to pay to Tirey L. Ford. The money, it was charged, was withdrawn in three installments by Ford, who presented orders signed by Calhoun. It was alleged by the prosecution that within a few days after each of Ford's visits to the Mint he received a call from Ruef. James L. Gallagher testified that Ruef had paid him \$40,000 in July and an equal amount in the following month. Gallagher stated that he had retained \$15,000 for himself and had di-

vided the remainder among the other supervisors. It was affirmed by the prosecution that Ruef and Schmitz divided the balance of the fund, about \$115,000. The specific indictment upon which Mr. Calhoun was tried was the offer of a bribe of \$4000 to Supervisor Fred P. Nicholas to influence his action upon the trolley permit. The trial began in January, 1909, but the jury was not completed until April 15. Many sensational incidents occurred during the progress of the trial. In March warrants were issued for the arrest of several men charged with stealing documents from the office of William J. Burns, special agent of the District Attorney's office. On March 26 and 27, the law offices of Patrick Calhoun were raided by the police upon a search warrant procured by Burns, who claimed to have information that his stolen papers were there. Over 200 documents were seized and delivered into the custody of the police judge, who had granted the warrant. Before the raiders had completed the task, attorneys for the United Railways had secured injunctions forbidding further search. Another order was secured forbidding the police judge to open the sealed packages. Many complications resulted during the progress of the trial through the activity of private detectives, several of whom admitted to have been privately in the employ of one side while secretly furnishing information to the other. Among the witnesses called in the trial was Rudolph Spreckels, who had instituted the graft prosecution. It was shown that \$234,000 had been raised and expended, and Mr. Spreckels's accounts, voluntarily produced in court, showed that he had contributed approximately \$175,000 of the total. The trial ended on June 20, in a disagreement of the jury. Ten voted for acquittal and two for conviction. Preparations were at once begun by Mr. Heney for a new trial. On June 28, the attorneys for Mr. Calhoun presented in court an affidavit contending that Mr. Heney was incompetent to try the graft cases because of his prejudice against Calhoun and other defendants, and also because he had violated the State law by accepting pay from Rudolph Spreckels while he was receiving money from the government in the Oregon land fraud cases. It was charged that Heney had received \$69,025 from the government, of which \$15,000 was in excess of the orders given by the Attorney-General. Mr. Heney declared that this money had been due him as the result of work previously done. In the primaries held on August 17, Mr. Heney's name was placed on the general ticket as a candidate for District Attorney. The only other candidate for the office on any ticket was Charles Fickert, the nominee of the Regular Republican, or Business Men's Committee. Fickert was regularly nominated and his name was printed on the ballot, while that of Mr. Heney had to be written in. Fickert received 11,000 Republican votes against 4300 for Heney. In the Democratic vote Heney received 2384 against 2260 for Fickert. In the elections held on November 2, Heney was defeated by about 15,000 votes. The Union Labor Party had nominated for Mayor P. H. McCarthy, while the nominee of the Democrats was Dr. T. B. W. Leland, and of the Regular Republicans, William Crocker. McCarthy received 10,703 votes; Leland 7549 and Crocker 5399. The result of the election was taken to indicate that public sentiment was

no longer in favor of the graft prosecutions. It had, in fact, been steadily waning. The convictions of Ruef and Schmitz were greeted with the greatest enthusiasm, but when prosecutions were begun against prominent citizens and business men, less sympathy was shown, and gradually the opposition to the prosecution became as bitter as the feeling against Ruef and Schmitz had previously been. A temporary change was brought about as a result of the shooting of Mr. Heney, when public sentiment again rallied to him, but this also finally cooled. McCarthy has been the head and front of labor unionism in San Francisco for fourteen years. He sought office on a platform which promised a business man's administration of city affairs.

In addition to the trial of Mr. Calhoun, other trials were carried on during the year. On March 2, Michael W. Coffey, one of the supervisors who had confessed to receiving bribes, was convicted and sentenced to seven years in the San Quentin penitentiary. Coffey had been promised immunity in return for his testimony against Ruef and others. When the Appellate Court reversed the conviction of Schmitz he refused to keep his bargain, and was indicted for accepting a bribe of \$4000 from the United Railways. On April 16, A. S. Newburgh, an attorney who was accused of attempting to bribe a juror in the Ruef case, was acquitted.

On October 19-23, the city held a festival in honor of Don Gaspar de Portolá, who discovered San Francisco Bay in 1769, and was also the first Spanish Governor of California. Warships of Great Britain, Holland, Germany, Italy, Japan and the United States were at anchor in the harbor and the soldiers and marines of these nations took part in the great military parade which signalized De Portolá's entrance into the city on the opening day of the festival. On other days there were imposing civic, industrial and automobile processions, and on the closing night there was an illuminated pageant, in which were numerous floats depicting many of the stirring scenes in the history of California. The festival was not only a celebration of the discovery of San Francisco Bay, but was also intended to celebrate the marvelous achievements of the city since the fire and earthquake of 1906. Since that disaster over 20,000 new buildings have been erected at a cost of almost \$60,000,000 greater than the value of the original structures. While the city has not yet entirely recovered from the setback sustained at that time, it has now an estimated population of 507,000, or nearly 200,000 more than in 1900.

In May the French government presented to the city a gold medal commemorative of its rebuilding.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below:

An act was passed giving the governing body of school districts the power to establish separate schools for children of Indians and for Chinese or those of Mongolian descent. When such separate schools are established, Indian, Mongolian or Chinese children must not be admitted to any other school. The establishment of fraternities in schools is prohibited. A joint resolution was passed by the Senate and Assembly declaring it right and proper that the people of this country should be advised as to the true position of California on the question of exclusion of Asiatics. It was

resolved also that Congress be respectfully urged to maintain intact the present Chinese exclusion law instead of taking any action looking to repeal, and to extend the terms and provisions thereof so as to apply to all Asiatics, including Japanese. Amendments were made to the statutes relating to divorce. Parents deserting children under the age of 14 years may be punishable by imprisonment in the State prison or in the county jail not exceeding one year, by a fine not exceeding \$500. A child labor law was passed prohibiting the employment of children under sixteen years of age between the hours of ten o'clock in the evening and six o'clock in the morning of the next day. No minor under fourteen years of age shall be employed except with the permission of the judge of the juvenile court. No minor under sixteen years of age shall be employed in any gainful occupation during the hours that public school is in session unless he can read English at sight and write legibly and correctly simple English sentences, and unless he is a regular attendant at a regularly conducted night school. The Juvenile Court was established as a branch of the Superior Court to enforce a law known as the juvenile court law. This law is designed for the protection of delinquent or dependent children. The department of engineering in the State was authorized to carry on topographic surveys and investigations in matters pertaining to the water resources of the State. The State Board of Health was charged with the duty of procuring and distributing free to the people of the State printed matter to demonstrate to them the prevalence of tuberculosis, the danger of infection, and the means of prevention and cure. Measures were adopted providing for increased sanitation in places used for the production of food and a statute was passed making it obligatory on all persons to assist in the extermination of rats. This measure was aimed to destroy the rats along the water fronts, which are supposed to spread the bubonic plague. A measure was enacted regulating the building and occupancy of tenement houses. The hours of labor in mines was limited to eight out of the 24. A measure was passed prohibiting the desecration of the United States flag by using it as an advertisement or otherwise. February 12 was made a legal holiday in the State. Gambling, pool-selling and book-making were prohibited. An act was passed regulating primary elections for the nomination of candidates for various offices, and providing a method whereby electors of political parties may express their choice at such primary elections for United States Senators. Laws of eminent domain were amended. A new law was enacted governing the location of mining claims. The practice of osteopathy and naturopathy was recognized and regulated. A reciprocal demurrage law was enacted and a railroad commission was provided for. A standard form of insurance policy was prescribed.

OFFICERS: Governor, James N. Gillett; Lieutenant-Governor, Warren Porter; Secretary of State, C. F. Curry; Treasurer, W. R. Williams; Comptroller, A. B. Nye; Adjutant-General, J. B. Lauck; Attorney-General, V. S. Webb; Superintendent of Education, Ed. Hyatt—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, W. H. Beatty; Associate Justices, H. Melvin, Lucien Shaw, F. M. Angellotti, M. C. Sloss,

F. W. Henshaw, W. C. Lorigan; Clerk, F. L. Caughey—all Republicans.

The State Legislature of 1909 was composed of 30 Republicans and 10 Democrats in the Senate, and 60 Republicans and 20 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

CALIFORNIA, UNIVERSITY OF. An institution of higher learning at Berkeley, Cal., founded in 1868. The number of students, exclusive of the summer session in 1909, was 3454. The number of officers, exclusive of the summer session, was 322. There were 250,000 volumes in the library. There were received in gifts or endowments during the year, gifts for current use, \$38,263; gifts for the erection of buildings, \$129,901; gifts for endowments, \$161,651; for other purposes, \$3800, or a total of \$333,616. In addition to ten colleges at Berkeley the University includes colleges of law, medicine, dentistry, and pharmacy, an institute of art at San Francisco, the Marine Biological Laboratory at San Diego, and the Lick Observatory at Mount Hamilton. The College of Agriculture includes the United States Agricultural Experiment Station, with sub-stations in various parts of the State, an elaborate system of bulletins and reports and the University Farm at Davis, Yola County. The University conducts also a summer session, a department of university extension, and issues seventeen series of departmental publications. The endowment of the University is about \$4,300,000 and the income about \$1,200,000, of which something over half came from the State. No tuition is charged to students from California, and non-residents pay \$20 a year. The president is Benjamin Ide Wheeler.

CAMBODIA. A French protectorate in French Indo-China (q. v.). Area, 67,724 square miles; population (1906), 1,193,534. Capital, Pnom-Penh, population, 50,000. The Cambodians (composed of Malays, Chinese, and Annamites) are a docile people; their language and civilization, unlike those of the peoples of the other Indo-Chinese states, are derived from India. The surface of the country is generally level, excepting the wild mountainous tracts of the north; the Malconz River drains it. The chief products are cotton, rice, gum, gamboge, stick lac, cardamom seeds, pepper, indigo, and cinnamon. The cotton yield was estimated in 1908 at 250,000 piculs, or 16,534 tons. Practically the entire output goes to Japan for the manufacture of the celebrated Japanese crêpe, for which its fibre is especially adapted. The pepper production is estimated at 750,000 kilos annually. The chief imports are salt, wine, textiles, and arms; the exports, salt fish, cotton, tobacco, and rice. The external trade is through Saigon, in Cochin-China, though in 1906, 27 vessels of 366,798 tons entered, and 20 of 311,704 tons cleared, at Srée Umbell. The present King, Sisowath, came to the throne in 1904. The French Resident-Superior is M. Luce.

CAMERUN. See KAMERUN.

CANADA, DOMINION OF. A possession of Great Britain lying north of the United States. The capital is Ottawa.

AREA AND POPULATION. The area in square miles (exclusive of the Canadian portion of the

Great Lakes, the Gulf of St. Lawrence, and the territorial seas) and the population, according to the census of 1901, are stated as follows:

Provinces	Area	Population
Prince Edward Island	2,184	103,259
Nova Scotia	21,428	459,574
New Brunswick	27,985	331,120
Quebec	351,873	1,648,898
Ontario	260,862	2,182,947
Manitoba	73,732	265,211
British Columbia	312,630	178,657
Alberta	253,540	72,841
Saskatchewan	250,650	91,460
Territories:		
Keewatin	516,571	9,800
Yukon	196,976	27,219
Mackenzie	562,182	5,216
Ungava	354,961	5,113
Franklin	500,000	.....
Total	3,745,574	5,371,315

In the foregoing figures, 125,756 square miles are water area. The total estimated population on March 31, 1909, was 7,185,000. In 1901 the natives of Canada numbered 4,671,815; of the British Islands, 390,019; the United States, 127,899; Russia, 31,231; Austria-Hungary, 28,407; Germany, 27,300; and China, 17,043. Roman Catholics numbered 2,229,600; Methodists, 916,886; Presbyterians, 812,442; Anglicans, 680,620; Baptists, 316,477. The number of Indians in 1901 was 99,010; in 1907, 110,345. A special census of the Northwest Provinces in 1906 returned the population of Manitoba as 808,863; Alberta, 185,412; Saskatchewan, 257,763. The larger cities, with population (census of 1901): Montreal, 267,730; Toronto, 208,040; Quebec, 68,840; Ottawa, 59,928; Hamilton, 52,634; Winnipeg, 42,340; Halifax, 40,832; St. John, 40,711; London, 37,981; Vancouver, 26,133; Victoria, 20,816; Kingston, 17,961. In 1909 Montreal, with suburbs, had an estimated population of 476,000; Toronto, with suburbs, 335,000; Ottawa, 90,000 (with suburbs, 100,000); Winnipeg, over 125,000. The estimated population of Canada in 1909 was 7,350,000.

Immigration (declared settlers) for three successive years, ending June 30, is stated as follows:

Country of origin	1906	1907	1908
United Kingdom	86,796	120,779	84,351
Europe (and Iceland). 44,349		56,652	62,860
United States	57,919	74,607	56,860
Total	189,064	252,038	204,071

Chinese immigrants in 1907-8 were reported at 2234. The reported immigration for the six months ending September 30, 1909, was 120,933, showing an increase of 20 per cent. over the corresponding period of 1908. Immigration is directed very largely to the Northwest Provinces, whose large areas, suitable for grain (especially wheat) production, are showing an extraordinary development, to a large extent by emigrants and capital from the United States. It is estimated that in 1909 some 75,000 Americans emigrated to the Northwest Provinces. Figures officially submitted in that year showed that there were still available for homesteads in Manitoba, 17,825,000 acres; in

Saskatchewan, 104,878,000; in Alberta, 117,369,000.

EDUCATION. Public instruction is controlled by the separate provincial governments. Primary instruction in the provinces is free and, except in Quebec and Manitoba, compulsory. In 1908, Alberta had 851 schools (including nine separate schools for Roman Catholics), with 1192 teachers, and 39,653 pupils; expenditure, \$2,636,835. British Columbia, in 1907, had 391 schools, of which 13 were high schools, 65 graded, and 283 common; pupils enrolled, 30,039 (1355 in high schools); teachers, 735; expenditure, \$864,771. In Manitoba there were, in 1907, 1943 schools, with 2480 teachers and 67,144 pupils (including seven high schools, with 3870 pupils). In New Brunswick there were, in 1908, 1767 schools, with 1861 teachers and 60,395 pupils. Nova Scotia had, in 1907, 2465 public schools, with 2626 teachers and 100,000 pupils; total expenditure, \$1,040,805, of which \$277,416 was contributed by the province. In 1908 the public schools in Nova Scotia numbered 2516, with 2664 teachers and 100,105 pupils; pupils in common school grades, 92,190; pupils in high school grades, 7913; in addition there were 271 pupils in government night schools, and 1309 in technical schools; expenditure, \$1,149,304. In Ontario there were, in 1907, 5819 public primary schools, with 8859 teachers (exclusive of kindergarten and night-school

pupils; Roman Catholic classical colleges, 19, with 624 teachers (all male) and 6274 students (all male); universities, 4, with 354 teachers (all male) and 2804 students (2541 male); schools for the deaf, dumb, and blind, 4, with 91 teachers and 507 pupils; schools of art and design, 11, with 50 teachers (male) and 2502 students (male); night schools, 62, with 150 teachers and 6343 pupils. Of the total number of teachers, 2816 were males and 10,323 females. Educational expenditure in the year 1907-8, \$4,707,249.

AGRICULTURE. About 30,000,000 acres are under cultivation. In 1903 the average value of farm land in the Dominion was computed at \$35.70; by provinces the values were: British Columbia, \$76.10; Quebec, \$41.90; Ontario, \$47.30; Prince Edward Island, \$33.70; Manitoba, \$27.30; Nova Scotia, \$25; New Brunswick, \$21.40; Saskatchewan, \$20.40; Alberta, \$18.20.

Of the agricultural products, the grain crops are the most important and are increasing in volume and value the most rapidly. Their increase is especially marked in Manitoba and Saskatchewan; these two provinces produced in 1909 about 138,000,000 bushels of spring wheat, as compared with about 55,000,000 bushels in 1904. The acreage and production of leading crops in the Dominion (exclusive of British Columbia) in 1908 and 1909 are shown in the following table:

Crop	1908		1909	
	Area	Production	Area	Production
	<i>Acres</i>	<i>Bushels. a</i>	<i>Acres</i>	<i>Bushels. a</i>
Wheat:				
Winter	770,400	18,798,000	662,100	16,095,000
Spring	5,839,900	95,636,000	7,088,500	150,649,000
Oats	7,941,100	250,377,000	9,502,600	353,466,000
Barley	1,745,700	46,762,000	1,864,900	55,398,000
Rye	100,550	1,711,000	91,500	1,715,000
Buckwheat	291,500	7,153,000	282,440	7,806,000
Flaxseed	159,500	1,469,000	138,471	2,213,400
Corn (for husking)	366,200	22,872,000	353,370	19,258,000
Potatoes	503,600	75,790,000	513,508	99,097,200
Turnips and other roots	271,443	101,248,000	248,047	107,724,600
		<i>Short tons</i>		<i>Short tons</i>
Hay and clover	8,210,900	11,450,000	8,210,500	11,877,100
Fodder corn	259,770	2,928,000	269,650	2,779,500
Sugar beets	10,800	109,000	10,000	86,000

a Bushels of weight: Wheat, potatoes, and turnips, 60 pounds; rye, corn and flaxseed, 56 pounds; barley and buckwheat, 48 pounds; oats, 54 pounds (the legal weight in Canada).

teachers) and 396,716 pupils; 449 separate schools for Roman Catholics, with 1034 teachers and 51,502 pupils; 5 separate school for Protestants, with 326 pupils; 145 kindergartens, with 15,242 pupils; 20 night schools, with 1552 pupils; 143 high schools, with 750 teachers and 30,331 pupils; 120 continuation schools, with 5317 pupils; total expenditure, \$8,769,876. Prince Edward Island had, in 1907, 479 schools, with 572 teachers and 19,036 pupils; expenditure, \$170,327. In Quebec there were, in 1907, 5592 primary schools, with 6630 teachers and 209,880 pupils; in 1908, 5594 primary schools, with 6668 teachers (6485 females) and 210,543 pupils. In the latter year figures for other schools were as follows: Model schools, 640, with 2914 teachers and 97,032 pupils; academies, 201, with 2192 teachers and 45,369 pupils; normal schools, 7, with 66 teachers and 526 students; schools annexed to normal schools, 7, with 30 teachers and 699

All the provinces, except Ontario, reported considerable increase of agricultural yield in 1909. From the sugar beet crop of 1907 26,057,480 pounds of refined sugar were made (the sugar output is confined practically to Ontario and Alberta). The production of leaf tobacco in 1908 amounted to 11,266,732 pounds (7,655,975 in Quebec and 3,503,739 in Ontario). The approximate value of farm crops in 1908, by provinces (excepting British Columbia), was as follows: Alberta, \$14,000,000; Manitoba, \$66,000,000; New Brunswick, \$28,000,000; Nova Scotia, \$20,000,000; Ontario, \$185,000,000; Prince Edward Island, \$9,408,000; Quebec, \$80,000,000; Saskatchewan, \$37,000,000. The average value of live-stock at the end of 1908 was: Horses (of three years and over), \$143; milch cows, \$34; other cattle (of three years and over), \$32; sheep, \$5.23; swine, \$5.86 per hundred pounds live weight. The total value of farm animals in 1908 was computed at \$530,-

000,000. On June 30 of that year the number of horses was placed at 2,118,165; milch cows, 2,917,746; other cattle, 4,629,836; sheep, 2,831,404; swine, 3,369,858. For the calendar year 1907, returns from 3516 butter and cheese factories, and seven factories producing condensed milk and cream, showed an output of butter amounting to 45,930,294 pounds, valued at \$10,949,042; cheese, 204,788,583 pounds, \$23,597,639; condensed milk and cream, 12,176,135 pounds, with a value, including all products of condenseries, of \$910,842. The value of all dairy products at factories was \$35,457,543, as compared with \$29,731,922 in 1906.

ALBERTA. In 1908 837,650 acres were under crop, including: Spring wheat, 212,677 acres, yielding 4,001,503 bushels; winter wheat, 104,956 acres, 3,093,422 bushels; oats, 431,145 acres, 15,922,974 bushels; barley, 77,876 acres, 1,949,164 bushels. The provincial government operates 24 creameries.

BRITISH COLUMBIA. Only about one-tenth of the available agricultural and fruit lands are at present settled upon. The average annual yield of fruit farm products is \$7,500,000. In 1907 the creameries of the province produced 1,651,304 pounds of butter, and the dairies about 400,000.

MANITOBA. In 1908, 4,987,498 (exclusive of cultivated grasses) acres were under crop. The total grain crop amounted to 113,658,188 bushels, as compared with 99,010,285 bushels in 1907. There were 2,850,640 acres under wheat in 1908, yielding 49,252,539 bushels; other yields in that year were: Oats, 44,686,043 bushels; barley, 18,135,757 bushels; linseed, 502,206; rye, 334,609; peas, 147,033. There were 29,963 acres planted to potatoes, yielding 5,148,696 bushels, and 13,592 under various root crops, yielding 3,419,670 bushels. Under cultivated grasses there were in 1908 125,332 acres, yielding 193,764 tons.

NEW BRUNSWICK. In 1907 the total farm land cleared was 1,664,941 acres, of which 1,087,626 acres were under crop and 16,290 in orchard and garden. The value of agricultural produce in 1909 was \$12,873,480.

NOVA SCOTIA. In 1908 there were 892,900 acres under crop, 1,282,050 acres in pasture, and 54,041 acres in orchard and garden. Hay is the most important crop, yielding annually over 1,000,000 tons. The apple crop is valuable, Nova Scotia apples having a large demand in the English market; the 1908 crop amounted to about 710,000 barrels; the 1909 crop, about 600,000 barrels. Apple shipments from Halifax in 1908 aggregated 615,000 barrels.

ONTARIO. In 1908 the area under crop was 9,621,683 acres; 3,326,169 acres were under pasture and 338,255 acres under orchard and garden. The average production per acre was: Winter wheat, 24.2 bushels; spring wheat, 15.5; barley, 28.5; oats, 34.8; rye, 16.5; peas, 18.7; beans, 16.9; potatoes, 111; turnips, 341; hay, 1.42 tons. Cheese factories numbering 1177 produced 116,695,642 pounds of cheese, valued at \$12,641,055, and 97 creameries made 9,895,109 pounds of butter, valued at \$2,355,170. The number of live-stock was reported as follows: Horses, 726,471; cattle, 2,824,859; sheep, 1,143,898; swine, 1,818,763; poultry, 12,285,613.

PRINCE EDWARD ISLAND. The area under crop in 1907 was 503,579 acres; in orchard and garden, 6077 acres. There were 34,363 horses,

53,096 milch cows, 61,156 other cattle, 111,202 sheep, 55,005 swine, and 720,787 poultry.

QUEBEC. The area under crop in 1907 was 5,250,405 acres; in orchard and garden, 77,416. There were 351,176 horses, 876,135 milch cows, 668,693 other cattle, 626,033 sheep, 729,453 swine, 4,342,241 poultry. In 1908 there were 1392 cheese factories, 627 butter factories, and 736 cheese and butter factories combined. The forest lands of Quebec cover an area of over 100,000,000 acres, and the timber and wood-pulp industries have assumed great importance.

SASKATCHEWAN. Grain (especially wheat) cultivation and cattle raising are the principal industries. Government encouragement is being given to the dairy industry. The area under all field crops in 1906 was 3,271,436 acres. In 1907 2,374,058 acres were under wheat. In 1898 the reported wheat yield was 4,780,440 bushels; in 1908, about 45,000,000 bushels.

MINING AND METALS. The total value stated for mineral products in the Dominion in 1907 was \$86,842,765. In 1908 the total value was approximately \$87,323,849, classified as follows: Metallic products, \$41,655,936; non-metallic products, \$45,367,913 (including structural and clay products valued at \$12,888,907); and products not reported, \$300,000. The quantity and value of the metallic products were: Silver, 22,070,212 ounces, valued at \$11,667,197; gold, \$9,559,274; copper, 64,361,636 pounds, \$8,500,885; nickel, 19,143,111 pounds, \$8,231,538; lead, 45,725,886 pounds, \$1,920,487; pig iron from Canadian ore, 99,420 tons, \$1,664,302; cobalt, 1,853,286 pounds, \$112,253. The total output of pig iron in 1908 was 630,835 tons, valued at \$8,111,194, of which 521,416 tons, valued at \$6,446,892, was produced from imported ore. The more important of the non-metallic products in 1908 were: Coal, 10,904,466 tons, valued at \$26,567,235; Portland cement, 2,655,289 barrels, \$3,709,063; asbestos, 65,534 tons, \$2,547,507; natural gas, \$1,012,060; petroleum, 527,987 barrels, \$747,100; gypsum, 340,964 tons, \$575,701; sewer pipe, \$514,042; calcium carbide, 6864 tons, \$417,150; limestone for flux, 418,661, \$289,705; clay products, stone, lime, etc., estimated at \$8,500,000.

In Alberta the coal output in 1908 was placed at 1,845,000 tons. In British Columbia gold production in 1907 was valued at \$4,883,020; coal production in 1908, 2,329,600 tons; silver, in 1907, \$1,793,519; the average annual yield of all minerals is \$25,800,000. In New Brunswick the 1908 coal output amounted to 60,000 tons. In Nova Scotia, for the year ending September 30, 1908, the coal output was 6,299,282 tons; coke, 505,003; gypsum, 242,535; copper ore, 1200; iron ore, 30,575; pig iron (mostly from imported ore), 326,303; cement, 44,529 barrels; gold, 11,990 ounces; limestone, 484,685 tons. In Ontario the total mineral production in 1908 was valued at \$25,219,000, as compared with \$25,019,373 in 1907 and \$11,572,647 in 1904. In 1908 metallic production was valued at \$17,160,813, as compared with \$14,550,835 in 1907. The leading values in 1908 included: Silver, \$9,125,903; pig iron (mostly from imported ore), \$4,390,839; nickel, \$1,866,059; copper, \$1,071,140; iron ore, \$536,369; gold, \$60,337; Portland cement, \$2,417,769; petroleum, \$703,773; salt, \$488,330. From the province of Quebec comes most of the asbestos produced in North America. In Saskatchewan the coal output in 1908 amounted

to 130,000 tons; gold production, which reached \$55,000 in 1896, has declined to a negligible quantity. In the Territory of Yukon the gold output, which reached \$22,275,000 in 1900, was \$3,600,000 in 1908; the coal production in 1907 was 15,000 tons; the silver production, which reached \$177,857 in 1900, was \$23,510 in 1907.

In 1909 a report based upon recent surveys and estimates of the Crow's Nest Pass coal field, which is crossed by the Alberta-Manitoba boundary, placed the amount of marketable coal in the field at upwards of 45,000,000,000 tons, showing it to be the most extensive field of coal in Western North America; for the most part the coal is bituminous.

FISHERIES. The total value of the Canadian catch in 1906 was placed at \$26,279,485; in 1907, \$25,499,349. The values of the catch by provinces for the two years respectively, were: British Columbia, \$7,003,347 and \$6,122,923; Manitoba, Alberta, and Saskatchewan, \$1,492,923 and \$968,422; New Brunswick, \$4,905,225 and \$5,300,564; Nova Scotia, \$7,799,160 and \$7,632,330; Ontario, \$1,734,856 and \$1,935,025; Prince Edward Island, \$1,168,939 and \$1,492,695; Quebec, \$2,175,035 and \$2,047,390. The leading values in the 1907 catch were: Dried cod, \$3,372,516 (the total value for cod—dried, fresh, and tongues and sounds—was \$3,619,817); preserved salmon, \$3,280,728; preserved lobsters, \$3,198,172; salted herring, \$1,302,698; fresh salmon, \$945,222; live or fresh lobsters, \$885,950; fresh halibut, \$841,387; smelts, \$775,860; whitefish, \$688,466; trout, \$676,892; salted mackerel, \$633,105; coarse and mixed fish, \$676,470; pickerel, \$586,489; fresh herring, \$546,002; dried hake, \$524,148. In 1907 the leading values of the catch in the several provinces were: British Columbia: preserved salmon, \$3,278,512; pickled and dry salted salmon, \$732,305; Manitoba, Alberta, and Saskatchewan: whitefish, \$363,150; pickerel, \$251,075; New Brunswick: lobsters, \$928,514 (preserved, \$819,304); herring (salted, smoked, kippered, and fresh), \$916,060 (salted, \$716,790); smelts, \$667,932; dried cod, \$404,610; Nova Scotia: lobsters, \$2,052,354 (preserved, \$1,281,104); dried cod, \$2,000,560; herring (salted, fresh, and smoked), \$496,126 (salted, \$412,587); Ontario: trout, \$586,873; whitefish, \$320,419; pickerel, \$319,225; Prince Edward Island: lobsters, \$867,947 (preserved, \$851,847); clams, \$100,362; Quebec: dried cod, \$875,331; lobsters, \$246,367 (preserved \$245,917).

MANUFACTURES. The Canadian census of manufactures, taken in 1906 and covering the calendar year 1905, shows the following distribution by provinces:

	Establishments	Capital	Value of Products
Canada	15,796	\$846,585,023	\$718,352,603
Alberta	120	5,545,821	5,116,782
British Columbia..	459	53,022,033	38,288,378
Manitoba	354	27,517,297	28,155,732
New Brunswick...	628	26,792,698	22,133,951
Nova Scotia	909	75,089,191	32,574,323
Ontario	7,996	397,484,705	367,850,002
Prince Edward I..	285	1,680,541	1,851,615
Quebec	4,965	255,479,662	219,861,648
Saskatchewan	80	3,973,075	2,520,172

In 1905 (the latest year for which statistics for the whole Dominion were available), the values of the leading industrial products were:

Log products, \$69,084,920; flour and grist mill products, \$56,703,269; butter and cheese, \$32,402,265; smelting, \$28,426,388; slaughtering and meat packing, \$27,220,363; foundry and machine-shop products, \$24,013,094; lumber products, \$21,078,158; boots and shoes, \$20,264,686; refined sugar, \$18,268,260; leather (tanned, curried, and finished), \$15,142,217; cars and car works, \$14,430,190; cotton textiles, \$14,223,447; clay, glass, and stone products, \$13,986,000; printing and publishing, \$13,038,104; agricultural implements, \$12,835,748.

FOREIGN COMMERCE. Canadian trade for the year ending June 30, 1906, the nine months ending March 31, 1907, and the years ending March 31, 1908 and 1909 has been valued as follows:

	Imports for Home Consump.	Total Imports	Total Exports
1906	\$290,360,807	\$294,286,015	\$256,586,630
1907	257,254,882	259,786,007	205,277,197
1908	358,428,616	370,786,525	280,006,606
1909	298,205,957	309,756,608	261,512,159

The imports for home consumption in the fiscal year 1908 consisted of merchandise valued at \$351,824,024 and coin and bullion amounting to \$6,548,661; in 1909, merchandise, \$288,135,350, and coin and bullion \$9,988,442. The total exports in the fiscal year 1908 consisted of domestic merchandise valued at \$246,960,968, foreign merchandise \$16,407,984, and coin and bullion \$16,637,654; in 1909, domestic merchandise, \$242,603,584, foreign merchandise \$17,318,782, and coin and bullion \$1,589,793. Dutiable imports in the fiscal year 1908 were valued at \$230,917,014, and free imports \$133,319,050; in 1909, \$185,329,094 and \$114,439,072 respectively. The total import duties in the former year amounted to \$58,331,074; in 1909, \$48,059,792.

In the fiscal year 1909 the larger classes of dutiable imports entered for consumption included: Iron and steel and their manufactures, \$33,083,397; woolen manufactures, \$15,833,254; coal, \$13,151,449; sugars and syrups, \$12,494,113; cotton manufactures, \$11,469,095; silk and silk manufactures, \$4,275,694; fruits and nuts, \$4,198,991; paper and paper manufactures, \$3,581,807; leather and leather manufactures, \$3,116,322; spirits, \$2,734,553; drugs, dyes, chemicals, and medicines, \$2,509,422; flax, hemp, and mineral oils, \$2,459,017; jute manufactures, \$2,447,512; hats, caps, bonnets, etc., \$2,275,163; glass and glass manufactures, \$2,245,150; meats, \$2,107,474; earthenware, \$1,716,887; wood and wood manufactures, \$1,608,635; carriages and vehicles, \$1,330,312; seeds, \$1,170,140; rubber and gutta percha manufactures, \$901,575. In 1909 the larger classes of free imports entered for consumption included: Mineral products, \$18,029,217; animals and animal produce, \$11,200,076; coin and bullion, \$9,988,442; drugs, dyes, chemicals, and medicines, \$6,910,473; forest products, \$6,176,005 (lumber, \$4,453,948); tea, \$5,045,055; green fruit, \$4,113,290; unmanufactured tobacco, \$3,436,176; tin manufactures, \$2,748,138; rubber, \$2,485,073; copper manufactures, \$2,351,153; mineral and vegetable oils, \$2,110,029; fishery products, \$925,173; molasses and syrup, \$878,418; green coffee, \$828,394; books and maps, \$816,819.

The following table shows by great classes the export values in the fiscal year 1909:

	Canadian Produce	Foreign Produce
Produce of mine	\$ 37,257,699	\$ 306,169
Produce of fisheries	13,319,664	28,314
Produce of forest	39,667,387	225,963
Animals and their produce ..	51,349,646	677,064
Agricultural products	71,997,207	10,746,719
Manufactures	28,957,050	3,997,130
Miscellaneous articles.....	54,931	1,337,414
Total	\$242,603,584	\$17,318,782
Coin and bullion.....	2	1,589,791
Grand total	\$242,603,586	\$18,908,573

The leading articles of domestic exports (that is, Canadian produce) in the fiscal year 1909 were valued as follows: Grain, \$53,782,629 (including: wheat, \$48,147,942; oats, \$2,175,765; barley, \$1,744,687); lumber, \$32,379,809; cheese, \$20,384,666; silver, \$13,284,084; living animals, \$11,798,028; meats, \$9,984,425 (bacon, \$8,414,049); flour and meal, \$8,590,286 (wheat flour, \$7,991,413); gold-bearing quartz, dust, nuggets, etc., \$7,293,420; copper, \$6,406,528; wood manufactures, \$5,081,221 (pulp), \$4,306,929; wood for pulp, \$4,356,391; hides and skins (other than furs), \$4,029,676; paper, \$3,469,713; codfish, \$3,348,149; lobsters, \$3,218,466; salmon, \$3,002,311; furs, \$2,503,411; iron and steel and their manufactures, \$2,479,284; leather and leather manufactures, \$2,369,557; alcoholic liquors, \$1,127,482.

In the fiscal year 1909 the values of imports for home consumption and of domestic exports, by countries, are shown in the following table:

Countries	Imports from	Exports to
United States	\$180,026,550	\$ 85,334,806
Great Britain	70,682,944	126,384,726
France	8,197,435	2,341,507
British West Indies	7,543,733	2,513,695
Germany	6,050,365	1,456,379
British East Indies.....	3,072,012	329,207
Switzerland	2,188,265	6,012
Japan	1,985,868	756,033
Belgium	1,901,588	2,699,162
Austria-Hungary	1,669,778	15,000
Newfoundland	1,638,428	3,392,168
Argentina	1,637,388	1,867,676
Netherlands	1,273,121	913,177
Spain	933,854	45,655
Italy	761,339	581,873
Dutch East Indies.....	672,638	.....
China	640,868	1,021,772
Cuba	488,664	1,388,004
Total, including all other countries	\$298,205,957	\$242,603,586

For the fiscal year 1909, the values of total imports and total exports, by provinces, were as follows:

Provinces	Imports to	Exports from
Ontario	\$132,384,595	\$ 69,038,570
Quebec	107,122,361	119,937,889
British Columbia	20,898,381	22,240,699
Manitoba	17,530,073	2,176,829
Nova Scotia	13,257,960	17,563,405
New Brunswick	9,508,306	27,214,741
Alberta	3,761,467	186,653
Saskatchewan	3,415,708	1,923,807
Prince Edward Island..	582,718	523,093
Yukon Territory	1,209,780	906,473
Other Territories.....	3,094	.....
Total	\$309,674,443	\$261,512,159
British prepaid postal parcels	82,165	.....
Grand Total	\$309,756,608	\$261,512,159

For the six months ending September 30, 1909, the imports for home consumption and the exports were valued at \$173,200,432 and \$131,189,656 respectively, as compared with \$142,461,754 and \$118,706,898 respectively in the corresponding period of 1908.

SHIPPING. The registered tonnage of vessels entered and cleared (exclusive of those in the coasting trade) in the fiscal year ending March 31, 1908, was 39,575,031; in 1909, 40,701,603. In the coasting trade the tonnage in the fiscal year 1908 was 50,529,835; in 1909, 52,670,198. In the latter year the entrances of sea-going vessels in the foreign trade numbered 15,140, of 10,264,187 tons (7,009,768 British, 1,793,095 American, 961,193 Norwegian and Swedish); clearances, 15,042, of 9,501,689 tons (6,201,880 British, 1,788,372 American, 995,089 Norwegian and Swedish). Of the entrances, 8249, of 9,228,796 tons, were steamers, and 6891, of 1,035,391 tons, were sailing vessels. Of the clearances, 7933, of 8,577,290 tons, were steamers and 7109, of 924,399 tons, were sailing vessels. Of the tonnage entered in the trade on rivers and lakes between Canada and the United States, 5,781,812 was Canadian and 4,845,064 American; cleared, 5,217,700 Canadian and 5,091,151 American.

COMMUNICATIONS. The following statistics of Canadian railways refer to the years ending June 30, 1907, and 1908 respectively: Miles in operation, 22,452 and 22,966; gross earnings, \$146,738,214 and \$146,918,314 (from freight traffic, \$94,995,087 and \$93,746,655; from passenger traffic, \$39,184,438 and \$39,992,503); operating expenses, \$103,748,672 and \$107,304,143; net earnings, \$42,989,542 and \$39,614,171; freight carried, 63,866,135 tons and 63,071,167 tons; passengers carried, 32,137,319 and 34,044,992. In 1909 a considerable mileage was added to the railways. A line down the Nelson River valley is projected and partially surveyed to Hudson Bay. Canada has an extensive system of canal, river, and lake navigation. The following statistics of canals refer to the year ending June 30, 1907: Vessels passing through, 38,161, of 17,933,745 tons (Canadian, 28,833 vessels, of 6,328,911 tons; American, 9328, of 11,604,834 tons); freight carried, 20,543,639 tons; passengers carried, 279,199; for the year ending June 30, 1908: Vessels passing through, 36,529, of 15,301,928 tons (Canadian, 29,040, of 6,780,789 tons; American, 7489, of 8,521,139 tons); freight carried, 17,502,820 tons; passengers carried, 280,830. The length of telegraph lines in 1907 was 32,455 miles. The post-offices on March 31, 1907, numbered 11,377.

FINANCE. The government financial accounts comprising the general sources of revenue and branches of expenditure are kept under the heading "Consolidated Fund." The following statistics relate to the fiscal years ending March 31, 1908 and 1909 respectively: Consolidated Fund revenue, \$96,054,506 and \$85,093,404; other revenue, \$911 and \$456,176; total revenue, \$96,055,417 and \$85,549,580;—expenditure chargeable to Consolidated Fund, \$76,641,452 and \$84,064,232; expenditure chargeable to "Capital," \$30,429,907 and \$42,593,167; railway subsidies, \$2,037,629 and \$1,785,887; other expenditures, \$3,469,692 and \$4,998,238; total expenditure, \$112,578,680 and \$133,441,524, the expenditure for the two years including sinking fund deposits of \$2,234,263 and \$1,922,525 respectively. For the fiscal year 1908-9 the principal sources of revenue were: Customs, \$47,-

415,325; excise, \$14,937,768; public works, including railways and canals, \$9,362,272; posts, \$7,401,624; interest on investments, \$2,256,043; Dominion lands, \$2,153,255. In the same year the leading items of expenditure, on account of Consolidated Fund, were: Interest on the public debt, \$11,604,584; public works (not including railways and canals), \$12,300,184; militia and defense, \$5,221,645; subsidies to provinces, \$9,117,143; lighthouse and coast service, \$2,721,802. The principal expenditures chargeable to "Capital," in 1908-9, were: Railways, \$35,846,185 (National Transcontinental Railway, \$24,892,351); canals, \$1,873,868 (Trent canal, \$1,099,836). The public net debt on March 31, 1908, stood at \$277,960,860; on March 31, 1909, \$323,930,279.

BANKS. On June 30, 1909, the Canadian chartered banks had an aggregate paid-up capital of \$97,436,427; deposits, \$681,658,944; assets, \$1,053,271,919; liabilities, \$870,192,322. Chartered-bank clearings in the calendar year 1908, aggregated \$4,142,114,000. On June 30, 1909, deposits in post-office savings banks amounted to \$44,568,683; government savings banks (except post-office banks), \$14,556,878; special savings banks, \$30,258,585; total deposits (including those in chartered banks), \$771,043,090. The note circulation, June 30, 1909, was: Chartered-bank notes, \$70,170,491; Dominion notes, \$79,005,301.

ARMY. Every Canadian between the ages of 18 and 60 is liable for military service, the male inhabitant being divided into four classes from a point of age, and whether married or single. There are 13 military districts and an organization was planned under the militia act of 1904. As yet there has been no compulsory service or enlistment and the forces consist of a permanent militia and an active militia in training. By the plan of reorganization adopted it was planned to have a line of first defense of 100,000 men, and maintain such a peace establishment that an addition of one-third its strength would put it on a war footing. The permanent force would be maintained as a means of instruction and would have a strength of 5000 men. The establishment provided in addition: Mounted troops, peace 3100, war 8000; field artillery, peace, 2000, war, 3470; infantry, peace, 35,000, war, 90,000. The total establishment of the organized militia was estimated at 3000 officers, 41,000 men, and 7600 horses on a peace basis, and 5000 officers, 100,000 men and 17,500 horses on a war footing in addition to 14,000 members of rifle clubs.

NAVY. The naval defense of Canada is entrusted at present to the Imperial authorities. In 1909 it was reported that in the following year the Canadian government would begin the construction of a fleet and the organization of a naval reserve. See paragraph on *History*.

GOVERNMENT. The executive authority is vested in the British sovereign acting through a governor-general, who is assisted by a privy council, or cabinet, of 14 members. The legislative power devolves upon a parliament of two houses, the Senate (87 members, nominated for life by the Governor-General) and the House of Commons (214 members, elected by popular vote for five years, unless the House is sooner dissolved). The Governor-General in 1909 (appointed September, 1904) was Sir Albert Henry George, Earl Grey. The Privy Council in 1909 was constituted as follows: Prime Minister

and President of the Council, Sir Wilfrid Laurier; Secretary of State, Charles Murphy; Minister of Trade and Commerce, Sir Richard John Cartwright; Minister of Justice and Attorney-General, A. B. Aylesworth; Minister of Marine and Fisheries, Louis Philippe Brodeur; Minister of Railways and Canals, George Perry Graham; Minister of Militia and Defense, Sir Frederick W. Borden; Minister of Finance, William S. Fielding; Postmaster-General and Minister of Labor, Rodolphe Lemieux; Minister of Agriculture, Sydney Arthur Fisher; Minister of Public Works, William Pugsley; Minister of Interior, Frank Oliver; Minister of Customs, William Patterson; Minister of Inland Revenue, William Templeman.

Each province has a separate administration and legislature. The executive is vested in a lieutenant-governor, who is appointed by the Governor-General and is assisted by a responsible ministry. In Quebec and Nova Scotia the legislature is bicameral, in the other provinces unicameral.

HISTORY.

QUESTIONS PENDING BETWEEN CANADA AND THE UNITED STATES. On January 11, 1909 the Waterways Treaty for the division and control of the waterways on the boundary between the two countries was signed by the British Ambassador and the American Secretary of State. Among the disputed points which it aimed to settle were the navigation problems of the Great Lakes, the rival claims in the matter of the Niagara water power and the questions as to the use of water for reclamation and other purposes. It allowed Canada 36,000 cubic feet per second from the Niagara and the United States 20,000 cubic feet, and it prohibited either country from doing anything to change the water level of the Great Lakes without the consent of the International Waterways Commission. It was to last five years. It now awaited ratification. Some differences arising, a conference was held early in April. A rider put on it by the United States Senate, dealing with riparian rights on the St. Mary's rapids, encountered objection in Canada, but this was overcome by the American provision for the purchase of these rights. Nevertheless the treaty was still awaiting Canada's ratification in December. In July the International Waterways Commission after three years' consideration decided adversely on the proposal to dam Lake Erie's outlet into the Niagara, on the ground that it would have a bad effect on navigation. As to the Newfoundland fisheries, an agreement was signed at Washington on January 27, and ratified on February 18, for reference of the dispute to the Hague Tribunal. The Newfoundland government at first dissented, but subsequently acquiesced. The arbitration court was to decide on seven questions, some of which concern Canada no less than Newfoundland. Canadian interests, for example, are especially involved in the fifth question which concerns the dispute as to the point from which the three marine miles referred to in the Convention of 1818 should be measured, the Americans contending for the right to measure from any point of the British North American shore, and the Canadians insisting on an imaginary line from one headland to another. On the opening of Parliament November 11, Sir Wilfrid Laurier announced that the government was practically

agreed as to the Waterways Treaty, but that there was one point to which they wished to give further consideration. The ratification of the French Treaty was also pending at this time. The leader of the Opposition, in the debate following the address, demanded careful consideration of the question whether the ratification might not cause the United States to apply the maximum clause in the Payne tariff to Canadian imports. The Premier replied that he did not think there was any danger of this, since, in his opinion, the agreement with France did not discriminate against the United States. In August it was announced that the regulations drawn up by the American and Canadian Commissioners as to the fisheries in inland waters would be published in December, but would not go into effect till January, 1911.

GOVERNMENT'S POLICY. The revised figures for the general elections of 1908 were published in January, 1909. The total vote was 1,176,104, as compared with 1,014,413 in 1904; the Liberal vote 596,533; the Conservative 579,571; the Independent 26,250. One of the features of the campaign of 1908 was the complaint of members of the woolen trade as to inadequate protection, which drew from Sir Wilfrid Laurier the promise to investigate the industry through a commissioner, who would be sent to England, and to accord further protection if it was found necessary. Early in January, 1909, the Commissioner reported that the existing duties were sufficient if the Canadian producers would adopt the technical methods that were employed in the Yorkshire industry. Another feature in the election campaign of 1908 had been the scandals in the Departments of Marine, an investigation of which was ordered by the government. The report of Judge Cassels exonerated the Lighthouse Board and the Ministers, but censured certain officials for collecting tolls from contractors. It was suggested that a new Purchasing Board be created to buy all the supplies for the public service. Later twenty-two officials were dismissed as a result of the misconduct brought to light in the investigation. The Speech from the Throne declared that as a result of the amendment to the Dominion Land Act, passed in the previous session, which provided for the sale of pre-emptions and purchased homesteads, the revenue was sufficient for the building of the proposed railway between the western wheat country and Hudson Bay. Exploration and surveying parties had already been sent out to determine as to a feasible route. An important government measure was the bill for the amendment of the Immigration Act to provide for the removal of undesirable immigrants by means of closer supervision at ports of embarkation, on board the ships and at the ports of arrival. It extended the time within which immigrants might be deported from two to three years. The government proposed a Department of External Affairs to have charge of all correspondence with the Imperial government, the sister colonies and the British Ambassador to the United States. As in the United States, public opinion was deeply disturbed by the destruction of the forests. The government was urged by the Forestry Congress to appoint a royal commissioner to investigate forestry conditions. Lord Grey on this occasion emphasized the need of putting a stop to the wanton destruction of the forests,

and pointed as a warning to the experience of the United States, which, he said, had suffered a loss estimated at £200,000,000 through its negligence in the matter. By a convention with France early in the year the subsidy for direct steamship service between the two countries was raised from £15,000 to £40,000. On March 12 the Daylight Saving Bill was introduced in the House of Commons, providing that from April 2 to October 2 local time should be observed one hour ahead of standard time in all the provinces except Yukon. It was referred to a committee, which late in the following month reported favorably upon it. A Parliament and Commission was appointed in March to investigate the different systems of proportional representation. In March Lord Strathcona presented the Dominion with £50,000 for a scheme for the physical training of school children. Other matters of importance under the consideration of Parliament were national defense and railway development, which are discussed in the succeeding paragraphs. For the budget, see paragraph on *Other Events*.

During the closing months of the year there was much discussion of the defense policy. In the first week in November the Trades Congress of Quebec passed a resolution condemning the spread of militarism in Canada and the establishment of a Canadian navy. To the delegation who presented this resolution, the Premier replied that although he was a champion of peace, he felt that it was impossible to do away with armies and navies. Attacks were also made upon the government's naval programme by the leader of the Conservative party in Quebec, Mr. Monk, who declared it a new departure. He said that the project should first be submitted to the electors, that to construct a navy now would drain Canada's resources, and that such a navy would be of no use as an aid to Great Britain's naval supremacy. He said that if Canada adopted the project of Imperial armament for Imperial purposes she must take her place in the concert of European nations who were already groaning under the burden of military and naval expenditures.

DEFENSE. The scheme of the British Secretary of State for War, Mr. Haldane, for a General Staff, was approved by the Canadian government subject to the latter's continued control of the Canadian division of the Staff. The subject of national defense was much discussed during the year, and there were signs of strong public sentiment in favor of Canadian participation in a scheme for Imperial defense. Mr. Foster moved in the House of Commons on March 29 that Canada should assume a fair share of the burden of defending the coast and seaports. His motion was adopted with some amendments. The duty of assuming a larger share of responsibility in the matter of national defense was recognized, but it was held that the best means to that end were not at present regular periodical contributions to the Imperial treasury. The House declared that it would approve expenditures for the purpose of organizing promptly a Canadian naval service in close relations to the Imperial navy, and that it held to the view that British naval supremacy was essential to Imperial interests. The government measure for the organizing of a naval militia was promised for this session. The discussion of national defense in coöperation with Great Britain continued in the press,

and on March 19 Sir Wilfrid Laurier announced in a speech the government's intentions in the matter. He admitted that the resolution passed earlier in the session was unsatisfactory. He did not, however, approve the proposal of the advanced wing for the granting of money to Great Britain to strengthen the navy. Canada, he thought, should provide for her own defense. The British naval authorities with whom he consulted after the passage of the resolution, were of the opinion that Canada should form no part of the Imperial organization, but that no action should be taken except according to the views of the Admiralty. Among the public at large feeling on behalf of Imperial defense appeared to be gaining strength and though encouraged by the government's declaration and the resolution of Parliament, there was a general demand that prompt action should be taken. Sir Wilfrid Laurier's speech indicated a modification of his earlier opinions which had been strongly against anything that savored of militarism. An important feature of the government's naval plan was the making of the Canadian vessels interchangeable with those of the home country. In the debate on the address which followed the opening of Parliament on November 11, Sir Wilfrid Laurier declared that Parliament had unanimously committed itself to the organization of a Canadian navy. During the later months of 1909 the Canadian government was in negotiation with the Admiralty concerning the personnel of the proposed Canadian navy. The loan of seamen from the Imperial navy to form a nucleus of the crews of the new Canadian vessels was one of the projects discussed. New military corps were formed in the western provinces. In the latter part of the year there was an awakened interest in military defense as well.

RAILWAY DEVELOPMENT. In 1909 as in the preceding year the progress of railway construction was very considerable. A new line was planned from Edmonton to Fort MacMurray on the Athabasca. The government expenditures on account of railways were very heavy. In the budget speech of April 20, the Minister of Finance, Mr. Fielding, declared that the increase of the net debt was \$46,029,000, of which \$32,000 was charged to the national trans-continental railway and the Quebec bridge. Railway construction was especially rapid in Western Canada, where it was expected that by midsummer 1635 miles of line of the Grand Trunk between Fort William and Edmonton would be finished in time to enable the railway to carry a large part of the season's crops. A bill for a loan of £2,000,000 to the Grand Trunk was read for the third time in the Commons on April 3. In the case of the Dawson Board of Trade vs. the Yukon and White Pass Railway Company, the court decided that under the amendment of the Railway act passed in the last session of Parliament, all railways were under the jurisdiction of the Board of Trade, even if they started in the United States.

Discussion of the "All Red Route" continued during the year. The original proposal was made at the Imperial Conference in London in 1907, when Sir Wilfrid Laurier carried through a resolution for an "all red" British steamship line to connect Great Britain and her colonies with the Far East. In July, 1908, the

Canadian Parliament passed a resolution declaring that Canada would assume her share of the subsidy for the route, and urging the other colonies to prompt action. A committee was appointed to consider means of overcoming difficulties in the way of the project, with the right to call expert witnesses. In July, 1909, the British Premier, Mr. Asquith, announced that the committee had not yet succeeded in removing these obstacles.

IMMIGRATION. The immigration season began actively with over 1800 arrivals in Montreal in the space of two days. During the previous year, that is down to March 31, 1908, the immigrants numbered 146,908, as against 262,467 in the year before, and showed a slight increase from the United States, and a falling off from Great Britain of sixty per cent. In recent years Canada had experienced the usual difficulty from the influx of undesirable immigrants, and the government introduced a measure for making the rules as to removal more stringent (see preceding paragraph). Mr. Mackenzie King, the Canadian representative to the Opium Trade Conference, issued his report on the investigation of Oriental immigration. This indicated that conditions were satisfactory, that Mr. Lemieux's agreement with Japan was respected by the Japanese, and that the arrangement made in the previous year with India was working well. Mr. King reported that the head tax of \$500 on Chinese immigrants served as an effective barrier, but that it seemed as if less offensive means could be found. In August it appeared from the official reports that for the first time in two years British immigration showed an actual increase. On the other hand the increase of immigration from the United States was much greater. In the latter part of August the arrivals from the United States were already heavier than the year before, when they numbered 60,000, and it was expected that before the close of the year they would reach the figure 75,000. Toward the end of September it appeared that for the first time in the history of Canada the immigration from the United States exceeded that from the United Kingdom—59,832 against 52,901. Another important fact in the movement of population during the year was that for the first time in many years, according to the annual report of the Department of Indian Affairs, the Indian population showed an increase. Its total, according to the report, was 111,043. The Canadian authorities had long felt the necessity of promoting the immigration of desirable classes of settlers from Great Britain. To this end Mr. Oliver, the Minister of the Interior, paid a visit to England to inspect the Canadian Immigration Agency. Mr. James, Deputy Minister of Agriculture in Ontario, also visited England to promote immigration to Ontario.

OTHER EVENTS. According to the budget speech of April 20, there was a surplus on March 31, the end of the fiscal year, of \$1,350,000. The total trade of the year was \$553,737,000, a decrease of \$97,000,000 from the year before, chiefly in imports. The estimated expenditure for the current year was \$80,078,624. The Minister of Finance declared there was no need of increased taxation, but of substantial reduction of the expenditures. In the summer there were signs that the year would be one of marked commercial and agricultural

prosperity. The correspondents of the Labor Departments from the industrial centres agreed in their comments on the favorable prospects. An important question of labor organization was raised by the strike in the Dominion Coal Company at Glace Bay on July 6. The strikers belonged to the United States United Mine Workers and hostile to the Provincial Workers' Association, which was on good terms with the company. The demand was for better labor conditions. Another instance of the power of the United Mine Workers of America was the strike of 1500 miners of the Cumberland mine at Spring Hill, Nova Scotia, on August 31 (see **STRIKES**). On the passage of the new tariff act by the United States there was talk of retaliatory action on the part of Canada (see **TARIFF**). It was urged that unmanufactured lumber ought not to be exported from Canada, and that if the provincial governments did not put an end to this export trade Parliament ought to levy a heavy duty on it. This policy had long been advocated by the Canadian paper manufacturers. The Quebec government decided that the export of lumber from Quebec must soon be stopped. During 1908, 901,861 cords had been exported to the United States from Quebec alone. Early in September the Quebec Premier repeated the assurance that the government would retort against the United States tariff by an export duty on pulpwood. The International Congress of Women was opened at the University of Toronto on June 11, comprising 150 delegates representing Great Britain, the United States, Germany, Canada, Australia, Netherlands, Norway, Sweden, Austria-Hungary, Belgium, Italy and Greece. Among its important resolutions was one to form a standing committee to aid emigrants, especially women and children, and a standing committee on education; also for national councils which should promote the use of school books presenting historical facts fairly and arousing interest in the peaceful settlement of international disputes. The next quinquennial council was to be held at Rome in 1914. At a meeting of the Manufacturers' Association in September, resolutions were passed approving Parliament's decision to appropriate money for Imperial defense and urging the establishment of a permanent government tariff, protesting against the clause in the Insurance Act passed in the previous session, which taxed insurance companies outside Canada, and favoring the prohibition of exports of logs and pulp wood. For some time past an important movement had been in progress for the consolidation of the maritime provinces. The conference of the Boards of Trade in these provinces was held at Charlottetown in August and adopted a resolution in favor of a Union. The governments of Nova Scotia, New Brunswick and Prince Edward Island were asked to appoint a committee to draft a plan.

The exposure of corruption in municipal affairs had greatly aroused public opinion during the year on behalf of the establishment of Boards of Control, consisting of five members elected by the city, who, along with the Mayor, would administer municipal affairs, while the City Council would only legislate. This system had already been tried with good results in Ottawa, Winnipeg, Toronto and other cities. In September

Montreal voted by a large majority for such a civic cabinet, electing a Board of Control for administration only and reducing the number of legislative aldermen. The plan was supported by all the leading papers. The supervision of the Battlefields Commission, which was appointed in 1908 to preserve the Plains of Abraham for the celebration of that year, was extended to the care of all the battlefields throughout Canada. An Empire Fair was opened by Lord Gray at Ottawa on April 2. Great damage was done in the spring by the choking up of the Niagara River with ice, obliging the power companies to shut down. There were some difficulties in northern British Columbia with the Indians in the summer. They showed a hostile temper and endeavored to drive the surveyors away from Hazelton. The Commercial Convention with France whereby Canada in return for the benefit of the French minimum tariff conceded to France the Canadian intermediate tariff on some articles and a special tariff on others was ratified by France in April. A supplementary trade convention between the two countries was signed in January, 1909. The bill ratifying it was read for the third time in the Canadian House of Commons at the close of November, and received the Royal assent on December 4. For fisheries dispute with United States see **ARBITRATION**, **INTERNATIONAL**, and **UNITED STATES**, paragraph on *Foreign Relations*. See also **EXPLORATION**.

CANADIAN CANAL. See **CANALS**.

CANADIAN CONFERENCE OF CHARITIES AND CORRECTIONS. See **CHARITY ORGANIZATION**.

CANALS. An interesting event of the year 1909 was the celebration of the jubilee of the Suez Canal, work on which was begun in April, 1859, while the canal itself was thrown open for navigation in 1869. The depth of the canal then was 26½ ft., which has since been increased to 33 ft., and this was being further deepened to 34½. At the same time the bottom width has been increased from 72 to 98½ feet. The tonnage passing through the canal has grown from 2,940,708 in the first year to 19,110,831 for 1908 and the average gross tonnage of vessels has increased from 1348 to 5036, while the time of passage has been reduced from 48 to 17½ hours, to which electric lighting has in large part contributed. The canal was used in 1909 by 2194 British vessels, 583 Jamaica, 243 Dutch and 238 French. In addition to the dredging of the canal proper other important work in progress in 1909 included the deepening of the entrance channel and mooring basin at Aden from 26 to 30½ feet at an estimated cost of about \$400,000. The enlarged mooring was designed to accommodate from twelve to fifteen of the largest ships using the canal.

On June 22, a beginning actually was made on the long discussed Cape Cod Canal, which was to extend from Sandwich on Barnstable Bay, on the Massachusetts Bay side, to Buzzard's Bay, a total distance of 8 miles of land and 4 miles to be deepened in the two bays. There is a difference in height of tide in the canal but no lock is contemplated. The excavation was being carried on by ladder and dipper dredges and suction dredges were to be used for the softer material. At the Atlantic entrance an artificial harbor protected by breakwaters was con-

templated. The canal is to have a surface width of 300 feet and a depth of 25 feet at low water.

The New York State Barge Canal System, which was provided for by the laws of 1903 and for which \$101,000,000 was appropriated, made considerable advance in the year 1909, and on November 30 the work under contract covered a distance of 295.3 miles, and additional plans were completed for 61.6 miles. Plans for much of the remainder were under way and at the end of the year it was estimated that contracts providing for the construction of 315.08 miles of canal had been let. The total length of the barge canal system, which involves the improvement of the Erie, Oswego and Champlain canals, making a waterway 12 feet in depth, is 431 miles, of which 27 miles is lake navigation, where Oneida, Onondaga and Cross Lakes are utilized. Forty-three per cent. of the entire mileage will have a minimum bottom width of 75 feet and the remainder not in lakes will be in canalized rivers and streams with a bottom width of channel ranging from 110 to 200 feet. On November 30 1909, there had been excavated 25,000,000 cubic yards of all classes of material, and 2,500,000 cubic yards of embankment had been formed. At that time there had been laid 500,000 yards of concrete and 5,000,000 feet of sawed lumber had been used. The total value of work since the beginning of construction amounted to \$15,800,000 and the estimates for 1910 were stated at \$16,000,000. At the rate of progress in 1909 it was estimated that the entire barge canal system would be completed at the end of the year 1914.

An interesting project discussed in 1909 and advancing towards accomplishment was the proposed ship canal at Seattle, Washington, to connect Lake Washington with Puget Sound, enabling the largest vessels to be transferred to this fresh water lake, where they may be tied up at wharves uninfluenced by tides and more accessible to a large portion of the city, which is at a higher level than the piers on the Sound, not to mention affording a much needed increase in harbor facilities. The right of way has been acquired, the project has been approved by the United States War Department, and appropriations were made by the State and action taken by the county towards carrying on the work, which will be done jointly with the United States Government. The estimated cost was \$250,000 for right of way already acquired, \$1,000,000 for excavation, \$1,250,000 for bridges and other crossings, while the locks, controlling works and power plant to be built by the government were estimated to cost \$2,500,000. The right of way is 300 feet in width and there will be a single lockage, though two locks, one 800 feet long, 80 feet wide and 36 feet deep, and the other 150 feet by 30 feet, by 16 feet, for small craft, will be constructed. This will raise vessels to the level of Lake Union, a small body of fresh water entirely within the city limits. The level of Lake Washington will be lowered without injury, it is thought, to its appearance, and much swamp land will be drained. The locks are to be built of reinforced concrete and steel, founded on a hard, tenacious blue clay. The excavation is along a route only about four miles in length and only three or four years' time were estimated as necessary for the completion of the work, once it was put under way.

An accident occurred at the lock of the Canadian Canal at Sault Ste. Marie, which occasioned much comment, particularly in view of the adoption of the lock type of canal at Panama. A vessel bound up, through a confusion of signals, struck the lower gates of the lock and caused them to release the water in the lock and to draw out the upper gates, allowing a flood of water to pass unrestrained through the lock. A second vessel was in the lock bound down, and a third was entering the lock in the same direction. One of these vessels was somewhat damaged as a result of a collision with a ship below, but the injuries to the other steamships involved were not serious. Within about 12 hours after the accident a movable dam, provided for just such occasions, was placed across the canal, thus controlling the outflow of water, and four days after the accident the lock gates were closed in readiness for repairs, which were completed within less than two weeks. This is the first serious accident of the kind that has occurred at either of the canals at the Sault Ste. Marie in 54 years. It was considered that it demonstrated the groundlessness of any fear on this score at Panama, as with suitable precautions such an accident should never occur, and if it did occur it was not of so serious a character as to render the lock incapable of use after a rapid repair by devices provided readily for that purpose. In November a collision occurred in the American canal, a vessel striking the upper lock gate and damaging it. The injury was not particularly serious and a new gate was promptly set in place.

During 1909 the work of widening the American canal at St. Mary's Falls (Sault Ste. Marie), was continued and the work was nearing completion. The plan was to widen the canal from 108 feet to 230 feet so as to permit the passage of vessels in both directions, leaving an island for the pivot piers of the railway drawbridge, and the bridge which carries the movable or emergency dam, a device so successfully used in the accident on the Canadian canal. The work was carried on without interference with traffic by leaving a small strip between the new and old canals, to be removed by blasting after the close of navigation. The enlarged channel, it was expected, would be ready for use in 1910. During 1909 progress was also made with the new lock and separate canal, which was provided in the River and Harbor act of March 2, 1907, at an estimated cost of \$6,200,000. Work in 1909 consisted in the construction of the cofferdam around the lock-pit and considerable excavation on the site of the lock.

The city of Buffalo had on foot a project for the construction of a drainage canal in order to divert its sewage from the Niagara River and empty it into Lake Ontario. This enterprise involved the withdrawal of 6000 cubic feet of water per second from Lake Erie and the reversal of the flow in Buffalo River and Smoker Creek, in addition to the construction of a new canal at an estimated cost of \$36,000,000 to Lake Ontario. In this undertaking power estimated at 150,000 horse-power will be developed, but this is secondary to the purification of the Niagara River and the diversion to the drainage canal of all sewage from towns along its banks, who derive from it their water supply. The plan involved both excavation and tun-

neling and a connection by lock with the New York State Barge Canal providing a terminal at Buffalo as well as at Tonawanda.

In Germany the use of the Kaiser Wilhelm Canal from the Elbe to the North Sea increased and preparations were being made for its enlargement. It was announced that the waterway was to be deepened to 36 feet at first and if necessary to 46 feet at some later period. The width of the canal was to be doubled and new locks constructed 1082 feet long, 147 feet wide, and with 46 feet of water over the sills. The entire improvement was estimated to cost about \$33,000,000. Early in the year work was commenced in the Berlin-Stettin ship canal, which is to be 26 feet deep and 100 feet wide. This work, for which \$12,500,000 have been appropriated, will require eleven locks, each with a drop of 9 feet, and 37 bridges.

The inland waterways of France are formed in large part by rivers which have been canalized and otherwise improved. During the year recommendations were made for the improvement of the Seine, Marne, Escaut, and Sambre and the Aire Canal, which it was estimated would involve over \$15,000,000. Regulation of the channel of the Rhine at its widest place was also contemplated. See PANAMA CANAL.

CANARY ISLANDS. A group of islands off the northwestern coast of Africa, constituting a province of Spain. Area, 2808 square miles. Estimated population, December 31, 1908, 403,908. The seat of government is Santa Cruz, and the most important town Las Palmas. The leading products and exports include potatoes, bananas, onions, tomatoes, and nuts. A submarine cable from Emden to Teneriffe was being laid in 1909; the cable is projected to Pernambuco, probably via Monrovia (Liberia). It had been a grievance to the people of Las Palmas, the largest city of the Canaries, that they were not under a direct representative of the Spanish government, but were ruled from Santa Cruz in Teneriffe, where the Governor had his seat. In 1909 the Spanish government, having decided to increase the rank and dignity of the office of Governor, Las Palmas protested against this system, and it was decided that the Governor should remain alternately for six months at Santa Cruz and Las Palmas, leaving a deputy-governor at the latter capital in his absence. This proposal was received with rejoicing at Las Palmas, but with corresponding chagrin at Santa Cruz. To solve the question it was proposed to refer it to a committee consisting of representatives of the islands. The new Governor, Señor Eulate, left Madrid on November 25 to assume office.

A serious volcanic eruption occurred on the island of Teneriffe from November 1 to November 20.

CANCER. While the relation between chronic traumatism and external cancer has long been recognized, the dependence of cancer of the internal organs upon chronic irritation has not been considered proven. Habersfeld, however, utilizing the enormous material of Vienna, has been able to examine a sufficient number of cases of cancer of the stomach, gall tracts and lungs to prove, in his opinion, that at least in these three organs chronic trauma is a most important predisposing cause of cancer. Of the 662 cases of cancer of the stomach occurring in Habersfeld's series of 20,000 autopsies, 106, or 16 per cent. showed evidence of having

originated in round ulcer of the stomach. Carcinoma and ulcer correspond very strikingly as to their distribution in different parts of the stomach. The autopsies confuted the current opinion that carcinoma is more common in men and ulcer in women, there being but little difference between the two sexes with respect to these lesions.

Even more striking is the relationship between the concurrence of gallstones and carcinoma of the gall tracts. In the 20,000 autopsies there were 164 cases in which carcinoma of the biliary tract caused death, and in 119 of these (.73 per cent.) gallstones were present. Here also collateral evidence is available, consisting in the fact that there is the same predominance of cancer of the gall tracts in women, viz.: 73 per cent. of all cases, as there is of gallstones, in the same series of autopsies, which yielded 265 cases of cholelithiasis, of which 195, or 73 per cent., were in women. The question as to whether the gallstones were due to cancer, rather than the predisposing cause, seems to be settled in the negative by Seigert's observation that, whereas in a series of 99 cases of primary carcinoma of the gall bladder, stones were present in 95, in 13 cases in which gall-bladder cancer was secondary to a growth in some other organ, stones were found only twice.

In cases of carcinoma of the lungs, chronic irritation was found to play a similar rôle, though evidence was more difficult to collect and interpret. Habersfeld found 68 cases of primary lung cancer in a series of 40,000 autopsies. As evidence that lung tumors may be incited by chronic trauma, we have the following facts: These tumors predominate in the right lung, and chiefly in the main bronchus, which may be correlated with the fact that the right bronchus is most subject to injury by dust and other foreign materials, owing to its more direct continuation from the trachea and to its larger size. Cancer of the lung is more common in men than in women, in the proportion of about three to one, which harmonizes with the fact that men are more exposed to bronchial irritation by reason of their occupations and habits. Histologically, it is found that pulmonary cancer is frequently a squamous-cell carcinoma, which is explained by the fact that under the influence of chronic irritation the cylindrical epithelium of the bronchi becomes transformed into the protective, squamous-cell type of epithelium, from which, in turn, squamous-cell carcinoma may develop under continued irritation.

A symposium of cancer problems, particularly those concerning the power of the animal organism to protect itself and develop immunity against malignant growths, was held at the last meeting of the German Pathological Society in Kiel, and the latest views concerning immunity and the spontaneous healing of cancer were discussed. Sticker emphasizes the widespread existence of a natural immunity to tumors, which is shown by the following observations: Tumors arising spontaneously in animals cannot be transplanted into animals of any other species, and only a few tumors can be transplanted even into animals of the same species. Metchnikoff was unable to transplant human tumors into anthropoid apes, while Sticker made over 400 unsuccessful attempts to transplant human tumors into various domestic

and laboratory animals. Artificial immunity against the transplantable tumors of animals has been secured by various means. An animal recovering spontaneously from an inoculated tumor will be found immune to subsequent inoculations, and its blood will in some cases protect other animals, if injected before or soon after they are inoculated. Animals have also been rendered actively immune to tumors by previous injection of tumor cells directly into the veins, by which route no tumors are ever produced; while, in the case of transplantable mouse cancer, immunity has been secured by injection of mouse embryos, mouse liver and benign mouse tumors, and even by injection of normal mouse blood. Attempts to secure active immunity by the injection of cells killed in various ways have been as a rule unsuccessful.

Ehrlich's form of immunity known as *athreptic* was warmly discussed by the German pathologists. The main facts of this subject are briefly as follows: When a tumor is implanted into an animal in several places at one time, several or all of the inoculations will take, but if a single tumor has been inoculated and has begun to grow vigorously, a second inoculation will seldom take. If an implantation tumor is extirpated, however, the animal becomes susceptible to a new inoculation even if made on the same day as the resection is done, but if the growing tumor is only partially removed it is still impossible to cause new implantation tumors. In mouse tumors it makes no difference whether or not the tumors used for first and second implantation are the same, for the presence of the rapidly-growing carcinoma will prevent successful inoculation with a sarcoma and vice versa, but Sticker found that a spindle-cell sarcoma growth in a dog did not prevent successful inoculation with a round-cell sarcoma. Ehrlich's explanation of this phenomenon is that the first rapidly growing tumor attracts the necessary nutritive substances to itself so strongly that the cells which are implanted later, being at first very poorly nourished, are unable to secure enough food and either perish or multiply very slowly; consequently this form of immunity is best seen when the first tumor is growing rapidly, and slowly-growing tumors may merely cause the second implantation to grow somewhat more slowly than a primary.

Ross and Macalister record a remarkable relation between the action of the body-fluids of persons suffering from cancer and a mixture of methylene blue and atropin. They noted that there appears to exist in the body-fluids of carcinoma subjects a substance which causes the excitation of an ameboid movement in the leucocytes. A mixture of methylene blue and atropin excited these movements; so did the blood of a cancer patient. The same mixture caused lymphocytes to extrude flagella with a particle of chromatin at their ends. The plasma of a cancer subject did the same. These authors found also that an extrusion of chromatin appears to be a phenomenon which occurs in cancer cells, and that cancer cells appear to produce "something" which aggravates the disease. It is possible, they say, that this "something" is chromatin, and in support of this theory is the fact that an extract which probably contains chromatin or a derivative of it accelerates the action of the artificial excitant. It may be noted that chromatin is a product of katabolism which may cause predisposition to the disease in persons over the age of 40.

CANFIELD, JAMES HULME. An American educator and librarian, died March 29, 1909. He was born in Delaware, Ohio, in 1847, and graduated from Williams College in 1868. After several years of railroad building, combined with the study of law, he was admitted to the bar in 1872. He practiced in Michigan until 1877, when he became professor of history in the State University of Kansas, holding this position until 1891, when he was chosen Chancellor of the University of Nebraska. In 1895 he became president of Ohio State University, and in 1899 he resigned this office to become librarian of Columbia University. He was the author of *Taxation* (1883); *A History of Kansas* (1889) *Local Government in Kansas* (1889); *The College Student and His Problems* (1902). Dr. Canfield was for five years secretary, and for one year president, of the National Educational Association.

CANNING OF FRUIT. See HORTICULTURE.

CANNON, JOSEPH GURNEY. An American public official, Speaker of the House of Representatives. He was born in Guilford, N. C., in 1836, and after receiving education in the public schools was admitted to the Illinois bar. From 1861 to 1868 he was State's Attorney of Illinois. In 1873 he was elected a member of Congress and served until 1891. In 1892 he was defeated for reelection but was reelected again in 1893 and served continuously thereafter. He served as Speaker in the 58th, 59th, 60th, and 61st Congresses. In the beginning of the 60th Congress considerable opposition developed to the methods of procedure in the carrying on of the business of the House adopted by Speaker Cannon, and this opposition increased in force during the 60th and 61st Congresses. There developed in the House of Representatives a body known as "insurgents," composed chiefly of Republican Representatives of Western States, although including several members of Congress from the East and other sections of the country. These "insurgents" declared that Speaker Cannon's rule was autocratic and was devoted in the main to obstructing the passage of measures advocated by the more "progressive" element in the House of Representatives, especially certain measures proposed and advocated by President Roosevelt. This opposition, however, did not attain proportions sufficient to lessen the Speaker's power until the beginning of the special session called to oppose the tariff bill. At this time the "insurgent" Republican Representatives aided by the Democratic Representatives secured some slight amendments to the rules under which the proceedings of the House of Representatives are conducted. (See UNITED STATES, paragraph on Congress.) Speaker Cannon's attitude during the discussion of the tariff bill in the House was characterized by the insurgents, and by those outside the House of Representatives who favored a radical downward revision, as hostile to such a revision, in spite of the fact, as they alleged, that such a revision had been promised by the Republican platform. After the passage of the bill Speaker Cannon and Senator Aldrich (q. v.) received the chief brunt of hostile criticism. A regular campaign was carried on against the former by various influential magazines in the country, and the movement progressed so far that many Representatives in various parts of the country were charged by their constituents to vote against Cannon's reelection.

tion to the Speakership. In reply to these attacks Speaker Cannon defended himself in several speeches, and especially in an address delivered in the latter part of October at Elgin, Ill. At this time he spoke with great bitterness of the attitude of the insurgent Republicans and declared that if they were Republicans he, himself, was something else. Following this address the attacks upon him by the supporters of the radical policies were even more bitter than before. See UNITED STATES, sections *Congress and Administration*.

CAPE COD CANAL. See CANALS.

CAPE COLONY. A British possession in South Africa. The capital is Cape Town.

AREA AND POPULATION. The area in square miles, and population of the colony and its dependencies, according to the census of April 17, 1904, are stated as follows:

	Area	White Pop.	Total Pop.
Colony proper	206,860	553,452	1,489,691
East Griqualand	7,594	5,901	222,685
Tembuland	4,117	8,056	231,472
Transkei	2,552	1,707	177,730
Walfish Bay	430	144	997
Pondoland	3,918	1,113	202,757
Betchuanaland	51,524	9,368	84,472
Total	276,995	579,741	2,409,804

The estimated population on December 31, 1907, was 2,507,500 (610,680 whites). In 1907 there were 60,415 births, 35,491 deaths; in 1908, 60,524 and 33,967 respectively. The larger towns, with population in 1904, were: Cape Town, the capital, 77,668 (with suburbs, 169,641); Kimberley, 34,331; Port Elizabeth, 32,959; Graham's Town, 13,877; Woodstock, Wynberg, and Claremont (included in the Cape Town "suburbs"), 28,990, 18,477, and 14,972 respectively. In 1904 1,305,453 persons were returned as Protestants. Education is not compulsory. Of the white population in 1904 about 22 per cent. of the males and 24 per cent. of the females could neither read nor write. On June 30, 1909, there were open 3681 schools with 172,225 pupils. There are also 5 colleges, with about 850 students, and an examining and degree-conferring university.

INDUSTRIES. Agriculture, mining, and the rearing of the live-stock are the principal industries. Of the total area of Cape Colony, 42,210,382 acres had not been alienated up to the end of 1908. The important crops are cereals, especially corn, oats, and wheat. The estimated value of cereal production in 1907 was \$7,213,939; of vineyard production, \$1,313,342; of fruits, \$378,127. The number of live-stock in 1904 was as follows: Cattle, 1,934,390; horses and mules, 419,963; sheep, 11,818,829; goats, 7,162,463; swine, 385,945; ostriches, 357,970. Wool, Angora hair, and ostrich feathers are important products and exports. The estimated value of live-stock in 1907 was \$127,804,000. Of mining products the most important is diamonds, of which the famous Kimberley district produced a value of £2,685,150 in 1908. There are valuable copper mines in Namaqualand, the ores yielding a percentage of from 32 to 36. Gold is found in the Knysna division, and manganese in the Paarl. The coal output in 1908 amounted to 122,685 tons. In 1904 there were 2527 industrial establishments, including flour

mills, breweries, tobacco factories, tanneries, saw mills, coach-building works, etc., employing 30,318 persons and having plant and machinery valued at £2,180,336, and annual output £9,040,579.

COMMERCE. Imports and exports, exclusive of specie, are stated as follows for fiscal years:

	1906	1907	1908
Imports.....	£18,102,872	£15,586,792	£13,739,878
Exports.....	40,048,693	44,504,450	42,011,582

The imports in 1908 included: Manufactured articles, £9,381,987; foods and beverages, £3,952,861; raw material for manufacture, £1,830,725; agricultural implements, etc., £246,251; live-stock, £141,585. The principal exports in 1908 were: Gold (chiefly from the Transvaal, though not included in the imports), £30,992,137; and diamonds, £4,796,655. The principal exports in 1907 were: Gold, £28,226,185; diamonds, £8,973,148; wool, £2,490,297; ostrich feathers, £1,814,210; Angora hair, £914,597; hides and skins, £804,027; copper ore, £577,395. In 1907 imports from and exports to Great Britain were valued at £9,674,650 and £43,017,180 respectively; British possessions, £4,022,344 and £37,546 respectively; other countries, £3,943,117 and £1,360,681.

COMMUNICATIONS. The length of railways in operation on December 31, 1908, was 3641 miles, of which 3265 miles were owned and operated by the government and 376 miles by private companies. Up to that date the capital expended by the government on railways was £32,155,156. By the Cape to Cairo Railway, Cape Town has steam communication with Bulawayo, the commercial centre, and Salisbury, the capital, of Rhodesia, and with Beira (Portuguese East Africa), the Victoria Falls, and Broken Hill. In 1908 there were 1065 post-offices; 586 telegraph offices, with 31,836 miles of wire; and 5751 miles of telephone wire. Cape Colony has cable connection with Europe via the West Coast, via St. Helena, and overland, and with Australia via Natal. The foreign shipping in 1907 included 648 vessels of 1,986,050 tons entered and 678 of 2,111,304 tons cleared, both entrances and clearances being mostly British.

FINANCE. Revenue and expenditure for fiscal year ended June 30 have been as follows:

	1906	1907	1908
Revenue.....	£8,236,880	£7,701,191	£6,981,873
Expenditure..	8,231,719	8,349,316	7,973,727

For the fiscal year 1909 the estimated revenue, exclusive of revenue from additional taxation, was £7,278,820, and the estimated expenditure, £8,192,291. The principal items of revenue in the fiscal year 1907 were: Railways, £3,662,533; customs, £1,763,400; stamps, £450,203; posts, £351,338. The larger expenditures were: Railways, £2,789,585; public debt, £1,743,463; justice and police, £866,297; public instruction, £507,177; posts, £347,746; administration, £332,227. The public debt on December 31, 1908, stood at £48,424,502, incurred principally for railways and other productive works; in addition there were treasury bills of £4,721,378; total, £53,145,880.

GOVERNMENT. The executive authority is vested in a governor and executive council, ap-

pointed by the Crown. There is a responsible ministry of six members. The legislative power devolves upon a parliament of two houses, the Legislative Council (26 members, elected directly for seven years) and the House of Assembly (127 members, elected directly for five years). The Governor (and Commander-in-Chief) of Cape Colony in 1909 was Sir Walter Francis Hely-Hutchinson. The Premier and Treasurer in 1909 (since February 22, 1904) was John X. Merriman.

HISTORY. The chief interest of the year centred in the adoption of the South Africa constitution (see SOUTH AFRICA, BRITISH). Parliament opened on June 1. In his speech the Governor, Sir W. F. Hely-Hutchinson, announced an improved condition of the finances, although equilibrium was not yet reached, and declared that no new taxation would be necessary. He referred to the renewed agricultural prosperity. Among the measures to be introduced by the government was a bill for labor colonies for the poor whites. On June 3, the bill accepting the Union passed the Cape Parliament, with only two members dissenting—Mr. Schreiner and Sir Gordon Sprigg. On June 5, Premier Merriman announced the adoption of the Act of Union and declared that the government would submit a bill to Parliament for the appointment of delegates to Great Britain, himself among them, to present the Draft of the Union, the delegation to have the power to accept amendments thereto. For an account of Mr. Schreiner's mission to England on behalf of the colored population see the article SOUTH AFRICA, BRITISH. A considerable party among the colored people appeared to be opposed to Mr. Schreiner's plan, for although they objected to the clause of the Draft of Union which drew the color line in the matter of representation, they disapproved any appeal to a government outside South Africa. On October 5, Premier Merriman introduced the budget with a speech in which he announced the deficit for the present year to be £364,000 and estimated the deficit for the next year at £82,000, but he said that according to the returns for the first three months of the present year the prospects were very favorable and that a surplus would result if taxes were kept at the same level as last year. He referred to the great increase of Cape Colony's exports to other parts of South Africa, to the revival of the diamond market and to the increase of the native labor supply from Cape Colony to Johannesburg. He proposed the reduction by one-half of the duties on brandies of the higher grades and lower railway rates on wines as compared with those charged on beer, and the imposition of a stamp duty of a halfpenny on cigarettes; also readjustments of educational finance and the incidence of the income tax. The budget though well received generally was sharply criticised by the wine-growing representatives, who declared that the measures proposed for the relief of their industry were inadequate. The government agreed to some concessions, and a light wine license bill was later introduced. In a speech on October 22, the Premier warned the Council against taking too optimistic a view of the financial situation and against making demands for excessive expenditure. The light wine bill passed the Assembly, but the Opposition strongly objected to it and pursued obstructive tactics in order to prolong the ses-

sion and embarrass the government. In consequence of these harassing tactics of the Opposition and of the desertion of some of its own supporters the government decided to place the granting of the light wine licenses in the hands of the town governments. There was much criticism of its course in having yielded to the demands of the wine growers in the first instance. The bill passed its third reading November 19. Many of the government measures were held up, but work went on more rapidly toward the end. The last regular session of the Cape Parliament ended on December 3.

CAPE TO CAIRO RAILWAY. Of important political and engineering significance was the construction of the various links in the Cape to Cairo Railway system, which by progressive advances was gradually linking together the countries of Africa. In the north the line through Egypt had been extended south to Khartum and by 1909 it had progressed thence 70 miles up the Blue Nile and then to the White Nile, which was to be crossed by a bridge under erection in that year. To the south the scheme involved the extension of the Rhodesian Railway from Broken Hill, the terminus it had reached in 1906. This line was owned by the British South Africa Co., and extends from Vryburg to Bulawayo, and thence to the Victoria Falls where the Zambezi River is crossed by a notable steel arch bridge opened in 1905. Thence the line was extended north to Broken Hill mine, 374 miles above the falls. In 1908 the British South Africa Co., the Katanga Railway Co., the Union Minière du Haut-Katanga and the Lower Congo-Catanga Railway Co., reached an agreement whereby the Rhodesian Railway was to be extended to the frontier of the Congo State, a distance of 133 miles. This was reached on November 16, 1909, and is 2147 miles from Cape Town. Thence the various Congo lines would construct extensions as the copper mining industry and other commerce warranted. The distance between the two systems was only about 300 miles, and this gap was under construction in 1909, the contract having been let for £3200 a kilometre. During the year the first section, from Stanleyville to Ponthierville, of the line to the Great Lakes and a large portion of the second section, or from Kindu to Kuyoko, had been surveyed and laid out.

CAPE VERDE ISLANDS. A group of 14 islands in the Atlantic about 350 miles west of Cape Verde, constituting a Portuguese colony administered by a governor at Praia. Area, 1457 square miles; population (census of December 31, 1900), 147,424, of whom 3856 were whites, 24,639 colored, and 48,929 negroes. Cultivated products include coffee, sugar, millet, indigo, and tobacco. Imports and exports in 1906 were valued at 2,092,540 milreis and 392,479 milreis respectively; in 1907, 2,339,684 and 220,261 respectively (the milreis is worth \$1.08). Exclusive of coasting trade, the shipping in 1907 amounted to 2118 vessels of 5,905,986 tons. For the year 1908-9 the estimated revenue and expenditure balanced at 465,182 milreis.

CAREY, ROSA NOUCHETTE. An English novelist, died July 19, 1909. She was born in London and was educated at the Ladies Institute, St. John's Wood. Her first novel, *Nellie's Memories*, was published in 1868, and it was followed by a novel nearly every year until

1907. Though lacking any remarkable literary qualities, her writings are wholesome and readable. Among the best known books are *Wee Wife* (1869); *Queenie's Whim* (1881); *Not Like Other Girls* (1884); *Uncle Max* (1887); *Rue with a Difference* (1900); *Household of Peter* (1905). Her last novel, *The Angel of Forgiveness*, was published in 1907.

CARLOS DE BOURBON, DUKE OF MADRID. Pretender to the Spanish throne, died July 18, 1909. He was born at Laibach, Austria, March 30, 1848, the eldest son of Don Juan de Bourbon, the third in the line of Spanish Pretenders, and of Marie Beatrice, Archduchess of Austria, and Princess of Modena. He was christened Don Maria de los Dolores Juan Isidoro Josef Francisco Quirino Antonio Miguel Gabriel Rafael Carlos, but he was known for the greater part of his life simply as "Don Carlos." His rights to the Spanish throne, which his father "abdicated" in his favor in 1868, were based on the ground that Isabella, daughter of Ferdinand, who was Carlos's granddaughter, and Christina, mother of Alfonso XII., were, by the Salic law, debarred from the succession. Carlos was the senior male representative of the house of Bourbon, and as such was first in direct succession to the throne of France, in the event of the restoration of the monarchy. He never asserted this claim, however, as by the treaty of Utrecht it was forbidden that the thrones of France and Spain should be occupied by the same person, and by the assertion of his right to the French succession, Carlos would have been obliged to renounce his claim to the throne of Spain. Carlos was educated in Austria, and Margaret de Bourbon, Princess of Parma, was chosen as his wife. In 1869, when he had reached his majority, he attempted, by the help of a portion of the Spanish clergy favorable to his claims, to profit by conditions existing in Spain to rouse on his behalf the supporters of his family's claims. The first sporadic outbreak in his behalf was easily crushed by the reigning family. Carlos made France the base of his plotting until, on complaint of Spain, Napoleon III. forced him to remove to Swiss territory. In April, 1872, he succeeded in raising an army in the northern provinces of Spain, and in July, 1873, he took active command himself. He had himself crowned as Charles VIII. and, until 1876, virtually reigned over northern Spain. After bitter fighting for nearly four years the forces of Carlos were decisively defeated by the army of Alfonso XII. at Estrella, in February, 1876. Carlos escaped into France, and made no further attempts to establish his pretensions by force of arms. In 1881 he was expelled from France for supporting the claim of the Comte de Chambord to the Bourbon throne of France. The ban was later removed, but he never again lived in France.

In 1893, following the death of his first wife, Carlos married Princess Marie-Berthe de Rohan. He gave out an "interview" in 1897 in which he declared that his failure to reassert his rights was his fear of embarrassing the Spanish government in its struggle to put down the Cuban insurrection. It was generally understood, however, that the real reason for his inactivity was the displeasure of his most powerful Spanish supporters at the fact that he had married a woman not of royal rank, who would never have been acknowledged as Queen of

Spain. Carlos's second marriage brought him great wealth, and that was considered to be his motive in making it. His tastes were very extravagant, and although his first wife left a great fortune, he was unable to use more than its income.

Carlos of late years made his home in Venice, where he was a well-known figure. He was a striking man of splendid physique and noble mien. In 1896, his second daughter, Elvira, eloped with a painter, a married man, and Carlos issued a proclamation disowning her. His son, and his successor as Pretender, is Don Jaime de Bourbon, who is about 40 years of age and an officer in the Russian Guards.

CARNEGIE FOUNDATION. See **UNIVERSITIES AND COLLEGES.**

CARNEGIE INSTITUTION OF WASHINGTON. An institution founded in 1902 by Andrew Carnegie when he gave to a board of trustees \$10,000,000, yielding 5 per cent. annual interest. To this endowment Mr. Carnegie in 1907 added \$2,000,000. The institution was incorporated by Act of Congress approved April 28, 1904. The articles of incorporation declare in general, "that the objects of the corporation shall be to encourage in the broadest and most liberal manner investigation, research and discovery, and the application of knowledge to the improvement of mankind." The institution has carried on many projects in widely different fields of inquiry. These projects consist chiefly of three classes: First, large projects or departments of work whose execution requires continuous research by a corps of investigators during a series of years. Ten such departments have been established by the Institution. They include the following: Department of Botanical Research; Department of Economics and Sociology; Department of Experimental Evolution; Geophysical Laboratory; Department of Historical Research; Department of Marine Biology; Department of Meridian Astrometry; Solar Observatory; Department of Terrestrial Magnetism; and Nutrition Laboratory. Many grants in aid of this class of projects have been made. The third class includes research associates and assistants. Under this head aid has been given to a considerable number of investigators possessing exceptional abilities and opportunities for research work. The Institution lost heavily during the year by death. Four Trustees, Carroll D. Wright, William Wirt Howe, Ethan Allen Hitchcock, and William Lindsay, together with Professor Simon Newcomb, the Research Associate, died during the year. Investigation was carried on during 1909 under the auspices of the Institution in more than 30 different fields of research and these investigations extended to more than 40 countries. The total number of volumes or publications issued directly by the Institution is 141, with an aggregate of about 35,000 pages of printed matter. For the larger departments of investigation there are now provided two astronomical observatories, five laboratories and one ship. A complete list of the equipment of these establishments includes 58 buildings and 8 smaller craft, in addition to the ship *Carnegie*. The total amount of funds appropriated for expenditure up to June, 1909, was \$4,320,140. The officers in 1909 were: President Robert S. Woodward; John S. Billings, chairman of Board of Trustees; Elihu Root, vice-chairman; Cleveland H. Dodge, secre-

tary. The Executive Committee includes William H. Welch, chairman; John S. Billings, Cleveland H. Dodge, S. Weir Mitchell, William B. Parsons, Elihu Root, Charles D. Walcott, and Robert S. Woodward.

CAROLINE ISLANDS. A group of islands north of New Guinea constituting a German possession (since 1899) and attached administratively to German New Guinea. Area, including the Pelew Islands, about 560 square miles; population, about 41,400, of whom in 1907, 137 were whites. For administrative purposes the islands are divided into East Carolines, with Ponapé as seat of government, and West Carolines (including the Pelew Islands and the Ladrone Islands), with Yap as the seat of government. In 1907 imports to East and West Carolines and to the Pelew and Marianne Islands amounted to 819,527 marks; exports, chiefly copra, 366,492 marks. For the year 1909-10 the estimated expenditures (including the Marshall Islands) is 609,458 marks.

CARPENTER, GEORGE RICE. An American educator, died April 8, 1909. He was born on the coast of Labrador in 1863, and graduated from Harvard University in 1886. He studied in Berlin and Paris from 1886 to 1888, and from the latter year to 1890 was instructor in English at Harvard. In 1890 he became associate professor of English at the Massachusetts Institute of Technology, holding that position until 1893. He became in the autumn of the latter year professor of rhetoric in Columbia University. Professor Carpenter's work in this capacity was notably successful. He was an inspiring teacher, an admirable organizer, and a man of high scholarly attainments. He was the author of a number of text-books in rhetoric and grammar, and wrote, besides, several volumes of a more general and literary nature. Among these were: *Life of Longfellow* (1901); *Life of Whittier* (American Men of Letters Series) (1903); and *Walt Whitman* (English Men of Letters Series) (1909).

CARSON, PERRY. An American negro politician, who was at one time the leader of negro politics in Washington, died November 1, 1909. He was born in Maryland and at the age of 15 was employed by politicians to assist fugitive slaves. He was once arrested for this work, but was released. President Lincoln heard of him and provided civil employment for him with the army in the Civil War until Carson enlisted as a volunteer. He was aggressive in many campaigns and was for many years delegate to national conventions in the District of Columbia. His latest appearance as a delegate was in the national convention of 1892 at Minneapolis, when he voted for James G. Blaine.

CASEMENT, J. S. An American soldier and engineer, died December 13, 1909. He was born in 1829 at Geneva, N. Y., and early won a reputation as an engineer. Previous to the Civil War he had laid the first rails of the Lake Shore Railroad from Cleveland to Erie, Pa., and of the Big Four from Cleveland to Columbus. He served in the Civil War, rising to the rank of brigadier-general. He did efficient service during the war in building bridges as fast as the Confederates destroyed them on Sherman's march to the sea. After the war he built a part of the Union Pacific Railroad, setting up a record of seven miles a day, which was never

surpassed. He also built the Nickel Plate Railroad from Cleveland to Buffalo, and later built railroads in Central America.

CATALYSIS, NEGATIVE. See CHEMISTRY.

CATHOLIC UNIVERSITY OF AMERICA. An institution of higher learning under the auspices of the Roman Catholic Church, founded at Washington, D. C., in 1865. There are faculties of philosophy, letters, sacred science, law and science. An undergraduate department was opened in 1902. Connected with the University are the following non-affiliated undergraduate colleges, Marist, Juniorate, and the College of St. John Canty. There were in 1909 258 students and members of the faculty. The books in the library numbered about 55,000. In January, 1909, Rev. James J. Shahan was selected to succeed Bishop Dennis J. O'Connell as rector of the University. Among other changes in the faculty during the year were the appointments of Very Rev. Charles F. Aiken, D. D., as Dean of the faculty of theology; Rev. N. Weber, D. D., instructor in history; Rev. J. M. Cooper, D. D., instructor in religion, and Dr. Frank O'Hara, Ph. D., instructor in economics. There were received in gifts during the year, \$34,846.

CATSKILL DAM. See DAMS.

CATTLE. See STOCK RAISING.

CAVALRY. See MILITARY PROGRESS.

CAYMAN ISLANDS. British West Indian possessions, administratively attached to Jamaica. Area, 225 square miles. Population, about 6000, the majority being whites. The principal town is Georgetown in Grand Cayman. Coconuts and turtle shell are exported. Imports and exports were valued at £28,000 and £16,000 respectively in 1906-7. The dependency is administered by a commissioner, who was George S. S. Hirst in 1909.

CELLITE. See CHEMISTRY, INDUSTRIAL.

CEMENT. The total quantity of Portland, natural and puzzolan cement produced in the United States in 1908 was 52,910,925 barrels, valued at \$44,477,653, as compared with 52,230,342 barrels, valued at \$55,903,851 in 1907. The small increase in quantity and the heavy decrease in value indicated the serious trade conditions which the cement industry encountered in 1908. Of the total production Portland cement comprised 51,072,612 barrels, natural cement, 1,686,682 barrels and puzzolan, 151,451 barrels. All the older States producing cement, especially in the eastern part of the country, showed heavy decreases in output, while a relatively small number of plants, mostly in the Middle West, reported very large increases as against 1907. The only really large producer to report an increase was the United States Steel Corporation. Pennsylvania ranks first among the States in the production of cement, followed by Indiana, Kansas, Illinois, New Jersey, Michigan, Missouri and New York. There were in 1908, 96 Portland cement plants in operation as compared with 94 in 1907. The industry has shown a remarkable growth since 1870, when only 82,000 barrels were produced. The production has steadily increased since that time. The total production from 1870 to 1908 inclusive was 395,567,392 barrels. The average price per barrel fell from \$1.11 in 1907 to 85 cents in 1908. Of the Portland cement manufactured, 40.6 per cent. is made of cement rock

and pure limestone, 45 per cent. from limestone and clay or shale, 5.5 per cent. from marl and clay, and 8.9 per cent. from slag and limestone.

New York is first among the States in the production of natural cement, followed by Pennsylvania, Indiana and Illinois. The imports of cement in 1908 amounted to 842,121 barrels, while the exports of hydraulic cement amounted to 846,528 barrels. The apparent consumption of Portland cement in 1908 was 51,068,505 barrels.

CENSUS. See UNITED STATES.

CENTENARIES AND ANNIVERSARIES.

The year 1909 was the anniversary of the births of an unusual number of eminent persons and of memorable events both in the United States and in foreign countries. The two events most elaborately celebrated in the United States were the tercentennial of the discovery of Lake Champlain and the Hudson-Fulton celebration in New York City and in other cities along the Hudson River. These events are discussed in separate paragraphs below.

In the early part of January the centenary of the birth of Edgar Allan Poe was celebrated quite generally throughout the United States. There were special exercises in Baltimore, where Poe was born and died; at Brown University, Providence, R. I., and New York City. In the latter place, a bust and tablet were unveiled in Poe Park opposite Poe College at Fordham. The centenary of the birth of Abraham Lincoln was widely celebrated on February 12. The most notable event in the anniversary was the dedication of Lincoln Farm at Hodgenville, Ky. This farm, which was the birthplace of Lincoln, was purchased by a national association formed for that purpose. The cornerstone of a memorial building was laid by President Roosevelt who made a notable address. Addresses were also made by General Luke E. Wright, at that time Secretary of War, on behalf of the Confederate soldiers; by James Grant Wilson, of New York, by Governor Willson of Kentucky and others. Among other notable celebrations in commemoration of the birth of President Lincoln were those held in Springfield, Ill., in New York City, and Chicago. The same date, February 12, was also the anniversary of the birth of Charles Darwin and this occasion, although perhaps of more interest to the scholar than to the layman, was observed in several cities of the United States, and the event was also celebrated in England and in other countries of Europe. (See DARWIN MEMORIAL.) On February 3 occurred the centenary of the birth of Mendelssohn, and on March 1 the anniversary of the 100th year since the death of Chopin. These anniversaries were celebrated more widely abroad than in the United States. On May 31 a group of writers and artists, who have their home in Westchester county, N. Y., commemorated some of the notable events in the history of that county at Bronxville, N. Y. The pageants included many beautiful and inspiring scenes. On July 5, the town of Norwich, Conn., celebrated the 250th anniversary of its settlement. President Taft was the guest of honor. There were many impressive pageants setting forth the important historical episodes in the history of the town. In the first week of August, Hadley, Mass., commemorated the 250th anniversary of its founding. In the week ending July 21, the city of Geneva celebrated the 400th anniversary of the

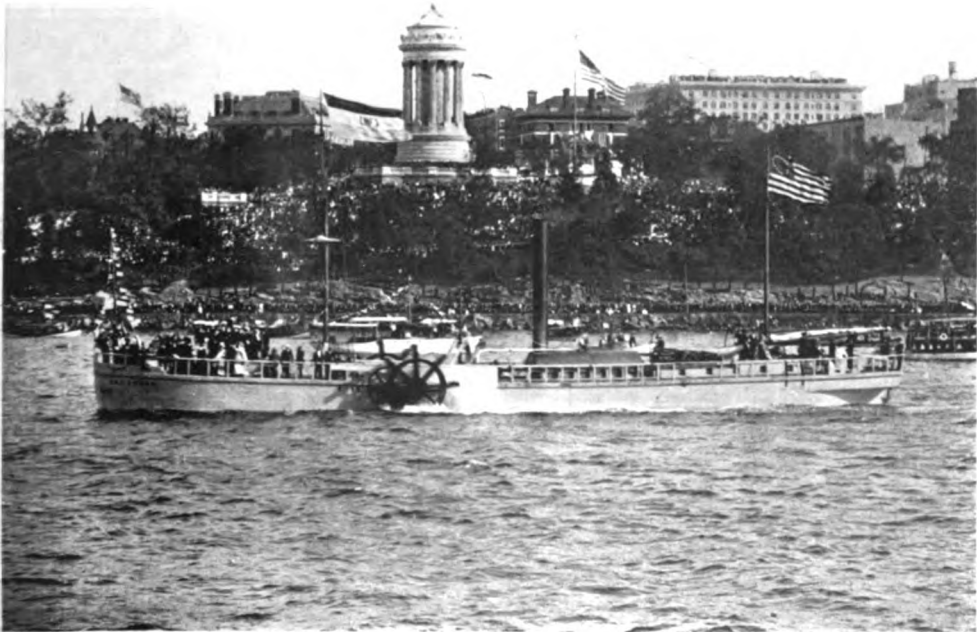
birth of John Calvin and the 350th anniversary of the founding of the University of Geneva. On July 6 was laid the cornerstone of an imposing international monument to the Reformation. On July 28-30 there was celebrated the 500th anniversary of the founding of the University of Leipzig. For mention of the Hofer centenary, see AUSTRIA-HUNGARY (paragraphs on *History*), of the anniversary of Italian Liberation, see ITALY (paragraphs on *History*), and of the Mistral anniversary, see FRANCE (paragraph on *History*). In the latter part of October there was celebrated in San Francisco the 140th anniversary of the discovery of the Golden Gate by Don Gaspar de Portolá in the year 1769. Combined with this was the celebration of the reconstruction of San Francisco from the effects of the earthquake and fire in 1906. The ceremonies included pageants of great beauty, parades and carnivals. The celebration was attended by a great number of persons from all parts of the country. The anniversary of the 100th year from the birth of Oliver Wendell Holmes was observed in August, and in December the centenary of the birth of Gladstone was celebrated in England and in the United States. Especial attention was given to this celebration by the combined meeting of the American Historical Society, the American Economic Society, and other societies in New York City. Two interesting anniversaries were those of the founding of the *Edinburgh Review*, and the *Cornhill Magazine*.

LAKE CHAMPLAIN. Beginning July 4, there was celebrated the 300th anniversary of the discovery of Lake Champlain. The States of New York and Vermont participated in the celebration, and it had in addition an international interest, as Ambassador Bryce of Great Britain and Ambassador Jusserand of France represented their respective countries, and a detachment of troops from Canada also took part in the exercises. The celebration began on July 4 at Crown Point and on successive days removed to Fort Ticonderoga and Plattsburg in New York, then to Burlington, Vermont, and last to Isle la Motte near the Canadian line. On July 6, President Taft, Ambassador Bryce of Great Britain, Ambassador Jusserand of France, and Vice-Admiral Uriu of Japan participated in the ceremonies. The exercises of that day were held at Fort Ticonderoga, and the President in his address made reference to the deeds of valor done in that locality in which France, England and America were concerned. Mr. Bryce spoke of the historical memories clustering about the ruins of the old Fort, and the French Ambassador expressed the goodwill of France towards America and Great Britain. On July 5, historical addresses were delivered at the site of the old fort, St. Frederic, by Governor Hughes of New York, Seth Low, and Judge Barnes of Chicago. At Crown Point effective pageants were given representing historical occasions. On July 7, Senator Root was the orator of the day at Plattsburg. At each of the towns at which celebrations were held Governor Hughes of New York and Governor Prouty of Vermont were the official spokesmen. Canada was represented by Postmaster-General Rodolphe Lemieux, who made several notable addresses. Addresses were delivered also by Hamilton W. Mabie and others, and poems were read by Clinton Scollard, Percy W. Mackaye and Bliss Carman. The most picturesque feature of the celebration was a pageant given by 175 Indians



Copyright by Underwood & Underwood, New York

THE REPLICA OF THE "HALF-MOON" IN THE HUDSON RIVER



Copyright by Underwood & Underwood, New York

**THE "CLERMONT" PASSING THE SOLDIERS AND SAILORS MONUMENT IN THE RIVER PARADE
THE HUDSON-FULTON CELEBRATION AT NEW YORK**

on a floating island in the lake. The island, which was built on scows arranged as a catamaran, was covered with trees, the lodges of Indians and a palisade of pointed logs with a great gate in the middle and inside several log houses and other huts, all built in the original style of the Iroquois. The Indians were said to have been descendants of the Indians whom Champlain and his successors knew. They presented the Indian version of the story of Hiawatha and reproduced the victory of Champlain and his Indian allies over the Iroquois. The island was towed from place to place on each day of the celebration and the pageant was there given. At Plattsburg was held the great military parade, composed of United States regulars, New York militia, members of the Grand Army, and the Governor-General's foot-guards from Ottawa and the Fifth Royal Canadian Highlanders from Montreal. In spite of their remoteness from the great centres of population the celebration was attended by a great multitude of people.

HUDSON-FULTON CELEBRATION. Beginning September 25, there were celebrated in New York City and in other cities along the Hudson River, the 300th anniversary of the discovery of that river by Henry Hudson. Along with this was celebrated also the 100th anniversary of the successful inauguration of steam navigation on the Hudson by Robert Fulton, although the year 1907 was the centennial of that event. The preparations for the celebration were undertaken long before its actual consummation. A committee composed of prominent citizens had been appointed, at the head of which was General Stewart L. Woodford, and a large sum of money had been granted by the city government. Invitations to foreign nations to participate were cordially accepted, and Great Britain, France, Germany, Italy, Netherlands, Mexico, and Argentina, sent squadrons of war vessels to take part in the celebration. The British representation, under the command of Sir Edward Seymour, Admiral of the fleet, comprised the *Drake*, the *Argyll*, the *Duke of Edinburgh* and the *Invincible*. Germany sent, under the command of Admiral von Koester, the *Dresden*, *Bremen*, *Hertha*, and the *Victoria Luise*. The French squadron consisted of three war ships, *Justice*, *Verité* and *Liberté* under the command of Rear-Admiral Lepord. From Italy came the *Etruria* and the *Etna*, from the Netherlands the *Utrecht*, from Argentina the *Presidente Sarmiento*, from Mexico the *Bravo* and from Cuba the revenue cutter, *Harney*. In addition to these there was present a great squadron of United States war ships, the finest in the navy. The most interesting of the naval exhibits, however, was the replica of the *Half Moon*, Hudson's ship, made in Holland and presented by that nation to take part in the festivities. The vessel was manned by Dutch sailors and commanded by Dutch officers. Scarcely less interesting was the model of the *Clermont*, the original steam vessel invented by Robert Fulton, which made the initial trip by steam up the Hudson. This little vessel was made in all respects like the original, as far as could be done from plans and descriptions available. Among the official visitors during the celebration were Prince Kuni, representative and cousin of the Mikado of Japan, and delegates from France, Belgium, Holland, Norway, Italy, Russia, Turkey, Morocco, Cuba, Mexico, Argentina, Chile, Peru, Venezuela, Ecuador,

Honduras, Nicaragua, Paraguay, Salvador, Uruguay, Haiti, Costa Rica and Panama.

The first event in the celebration was the marine parade on Saturday, September 25. The war ships of the United States and the visiting war ships were anchored in the Hudson forming a long line many miles in extent. Along this line a procession of vessels headed by the *Clermont* and the *Half Moon* passed. It is estimated that the line of vessels of all sorts taking part in this parade was more than 40 miles long. It passed from the Statue of Liberty to the beautiful Water Gate at 110th Street, erected as a landing place for the visiting officers and men of the battleships. Here took place the ceremonies attendant upon the presentation of the *Clermont* and the *Half Moon* by the Hudson-Fulton Celebration Commission and here the two little craft were anchored. There were said to have been over a million people gathered along the New York and New Jersey banks of the river as the line of vessels passed.

On Tuesday, September 28, was held the first of the great land pageants. This was a historical pageant setting forth the history of Manhattan Island from before the advent of Hudson until the present time, by means of allegorical floats.

On Thursday, September 30, was held the great military parade, which was participated in by 25,000 men, including those from the visiting war ships, sailors from the United States vessels and many thousands of troops from the military organizations of the State. There were also in the line veterans of the Grand Army of the Republic and the Spanish War, cadets from the Military Academy at West Point, and a detachment of soldiers from the regular army.

Saturday, October 2, was Children's Day and the ceremonies were participated in by some 150,000 of the smaller pupils of the public and parochial schools of the five boroughs. On Saturday night a carnival parade, arranged by the German, Austrian and Swiss societies of the city, closed the celebration as far as New York City was concerned.

One of the events of the celebration most eagerly looked forward to was the aeroplane exhibitions which Wilbur Wright and Glenn H. Curtiss had planned to give. The flying machines were housed on Governor's Island, but during the celebration week proper the weather conditions were propitious only for short flights. On October 6, however, Wright flew in his aeroplane around the Statue of Liberty. Curtiss was unable to fly at all and he was compelled to leave to keep other engagements before he had succeeded. On the second Monday of the celebration Wilbur Wright made a trip from Governor's Island to Grant's Tomb and over the war ships in the river. This trip was entirely successful and was witnessed by thousands along his route.

The celebration continued in cities along the Hudson River for a week after it had concluded in New York City. There were celebrations in Albany, Troy, Newburg, Stony Point, Yonkers, Poughkeepsie, Catskill, Hudson, Kingston, Ossining, Croton-on-the-Hudson, and Haverstraw. The *Clermont* and the *Half Moon* participated in these celebrations and addresses were delivered by Governor Hughes and others. The actual culmination of ceremonies was a series of beacon lights along the Hudson from New York City to Albany, which were burned as a

farewell illumination at nine o'clock on the evening of Saturday, October 9.

Among the important features of the celebration was the dedication of statues, tablets and other memorials by various patriotic societies and organizations in different parts of the city. On September 27, was dedicated the Palisades Interstate Park at the old Cornwallis Headquarters at Alpine Landing, N. J. The Park was accepted on behalf of the State by Governor Hughes. On the same day was dedicated the Henry Hudson monument to be erected at Spuyten Duyvil on the Hudson. This monument is to cost \$100,000 and the cornerstone was laid on this date. A tablet was placed on the site of Fort Tryon at 197th Street under the auspices of the American Scenic and Historic Preservation Society.

Many notable art exhibits illustrative of the period commemorated were held in New York City. At the Metropolitan Museum of Art was a special display of over 130 paintings by Dutch masters of the 17th century. In the same museum there was also a special display of American Colonial art, including silver. At the National Arts' Club there was an unusually interesting exhibition of paintings, drawings, engravings and art objects, illustrating 300 years of New York City in its colonial, revolutionary, 19th century and 20th century periods. At the American Museum of Natural History there were shown original objects illustrating the life of the Indians who were displaced from Manhattan Island and the Hudson River following Hudson's discovery. At the New York Aquarium and at the New York Botanical and Zoölogical Gardens there were special collections of fishes, birds and animals, peculiarly related to the Hudson River. Many other societies held exhibitions in some way appropriate to the time and the occasion.

In England also a notable series of pageants which began in 1905 was continued during 1909. In the pageant held at Bath most of the episodes showed historical events connected with the local Baths from the time of the Roman occupation to the days of Beau Nash. At Cardiff were celebrated with a series of pageants events directly or indirectly famous in the history of Wales. Other pageants also were held at Colchester, at Fulham Palace, and perhaps the most notable of all, at York, where the history of the city from the earliest times until the great civil war was displayed in a striking series of episodes. During 1910 pageants are proposed at Chester and London (the "Pageant of Empire").

CENTRAL AMERICA. That part of North America lying to the south of Mexico. It includes the republics of Guatemala, Honduras, Salvador, Nicaragua, and Costa Rica, and the colony of British Honduras. These states are treated under their own titles. The most important event of recent years was the establishment of the Central American Court of Justice, which opened at Cartago, Costa Rica, on May 26, 1908. It is designed to adjust matters in dispute between the Central American republics. On January 20, 1909, delegates of the several republics met in the first Central American Conference, at Tegucigalpa, Honduras. A convention was agreed upon for the unification of the monetary system, customs duties, weights and measures, fiscal laws, and consular service. Regarding

the monetary system, the Conference prescribed the gold and silver peso in parity and of the value of the American dollar as the basis of the currency which was to be established, and left to the Conference of 1910 (to meet at San Salvador, January 1) the fixing of the date from which the several governments should proceed with the conversion of their monetary systems. It was decided that the new coinage should consist of the following pieces: 20, 10, 5, and 1 peso gold; 1, 0.50, 0.25, and 0.10 peso silver; and 0.05 and 0.01 peso nickel. Regarding weights and measures, the Conference prescribed the metric system, to become effective on such date as the next Conference should select. In respect to customs, it was decided that imports and exports of the five republics through their frontier custom houses should be free of duty, except articles subject to monopoly. Further consideration of customs duties and of fiscal laws was left to the next Conference. It was agreed that at each of the various consular places in foreign countries a single consul represent the five republics. The operation of this convention was to begin on the date of the last ratification and remain in force until one year after it should be denounced by one of the signatory governments.

CENTRAL AMERICAN COURT OF JUSTICE. See ARBITRATION, INTERNATIONAL.

CENTRAL BANK. The discussion on the problem of reforming our banking and currency systems centred largely upon the advisability of establishing a central bank in this country. It was pointed out, on the one hand, that the United States is the only important commercial nation that does not have a central bank; but, it was stated, on the other hand, that banking conditions in the United States are materially different from conditions in England, France and Germany, the nations profiting most from a central bank. While some were inclined to argue on the basis of historical developments in other countries that the central bank represents the highest and final form in the evolution of banking institutions, others laid stress upon the difference between the relatively small and homogeneous countries with a few banks dominated by a central bank and the United States with its immense territory, sectional differences and its 25,000 banks.

Through the utterances of Senator Nelson A. Aldrich, early in the summer, it was made certain that the National Monetary Commission (q. v.) was strongly inclining toward the central bank idea. From his study of European banking history and institutions, Senator Aldrich was led to the conclusion that the reason why there has been no general suspension of banking institutions and no general destruction of credit in any European country during the last fifty years is the power of the central banks. He pointed out that during times of panic or money stringency, the great central banks strengthen their reserves and extend credit liberally to firms and institutions whose condition is sound. Senator Aldrich, at the same time, declared that two absolute essentials of any central bank plan would be to insure "that control of the monetary system shall be kept free from Wall Street influences, and that it shall not be manipulated for political purposes."

One of the chief advocates during the year of a central bank was Mr. George M. Reynolds,



Photograph by Edwin Levick, New York

**THE HISTORICAL PAGEANT PASSING THE COURT OF HONOR
THE HUDSON-FULTON CELEBRATION AT NEW YORK CITY**

a leading banker of Chicago and President of the American Bankers' Association. While he did not favor the destruction of the present system, or any great reduction of the functions now enjoyed by national banks, he favored a central bank, with capital of not less than \$100,000,000. He would make this bank the sole depository of government funds, give it authority to discount sound business credits for 90 days or less, and to issue notes secured in part by coin and in part by short-term commercial paper. Such a bank would form a large credit-creating power to which other banks and business men could go for discount accommodations under all circumstances. It would thus become a potent factor in the prevention of panics and an important regulator of the alternating periods of redundancy and stringency in the money market.

Mr. George E. Roberts, a prominent banker and formerly Director of the Mint, came out in favor of the central bank, particularly because of the lack of unity among American banking institutions. He stated that it was the lack of organization, of leadership, and of reserve power, due to local influences and excessive competition, that led to the frequency and severity of panics in this country. He believed that a central bank should be started, with as few changes as possible in present conditions; but he felt certain that such a bank should have more than a mere clearing house organization; it should have a paid-up capital and a gold reserve; should do business only with other banks; and should be empowered through note issues to supply an important part of the paper money of the country.

Professor O. M. W. Sprague, of Harvard University, writing in the *Quarterly Journal of Economics* and elsewhere, while agreeing with Senator Aldrich that the problem before the country is the organization of credit rather than the modification of currency arrangements, was inclined to point out practical difficulties and objections. He pointed out the absence of branch banking in this country, and the evil of concentrating banking reserves at one point in a country like the United States. He declared that the advocates of the central bank continually emphasized the importance of facilities for extending banking credit, but failed to consider the equally important necessity of restraining the expansion of credits during times of business confidence and speculative activity. He stated that without due restraining power a central bank through the very facilities would simply add fuel to speculative extensions of credit. He pointed out that owing to the extraordinary extent to which checks are used in this country, notes furnished by the central bank to other banks would become the basis of deposit credit to several times their amount, thus making possible an undue extension of banking credit. Moreover, as he indicated, the exercise of necessary restraining power and the proper contraction of credits by the central bank would be rendered extremely difficult, if not impossible, by the independence of local bankers all over the country and the probable difference between their views and those of the central bank management.

Probably the most widely discussed proposal for banking and currency reform not based on the full acceptance of the central bank idea was that put forth by Mr. Victor Morawetz in

various articles and addresses, and in his book on *The Banking and Currency Problem in the United States*. He starts with the proposition that the panic of 1907 was a banking panic; the underlying industrial conditions generally were sound, but the failure of a few banks demoralized credit relations and brought disaster to business. Finding the immediate cause of that breakdown in the undue expansion by the banks of their deposit liabilities as related to their cash reserves, Mr. Morawetz declares the primary problem is to devise a plan that will enable banks to extend their credit to the greatest extent consistent with safety, and no further. He finds also that temporary money stringency, due to a variety of ordinary business causes, render banks unable to perform normal services often when most needed. A second aim therefore should be to enable banks to expand their deposit liabilities, loans and discounts, while increasing their reserves. What, then, are legitimate or true banking reserves? Mr. Morawetz rules out deposits made by one bank with another, bank notes, call loans, and stocks and bonds, even though readily salable. All of these may strengthen the position of particular banks holding them, but do not strengthen the general banking situation, for one bank can utilize the above resources only by securing lawful money from another bank. Therefore the only true banking reserves consist of legal-tender money. The author estimates that banks in the United States taken collectively carry cash equal to only about 8.5 per cent. of deposits; while the Bank of England holds a reserve of 50 per cent. against deposits and a separate full reserve against its notes, the Bank of France a reserve of 80 per cent. against deposits and notes, and the Imperial Bank of Germany about 40 per cent. against deposits and notes.

Therefore, it is necessary to ask how United States banks can increase their reserves. Mr. Morawetz thinks this should not be done by the issue of more legal-tender silver dollars, or more greenbacks, but by increasing the amount of gold in banks and by the issue of bank notes to replace legal money now in circulation. He argues that if bank notes are considered perfectly exchangeable for legal money, the latter will become available as bank reserves. How, then, shall the notes be issued? Not by each bank independently, as in Canada and Scotland, with, respectively, thirty-four and eleven banks; not by a central bank, as in England, Germany, and France, for political impediments to such a bank are insurmountable; not by an emergency circulation, for that will become available only in times of extraordinary stress, and will not prevent such times; not by the national government; and not by any guaranty scheme, for that "would weaken the strong banks far more than it would strengthen the weak banks." Mr. Morawetz, therefore, advocates the establishment of a central agency with power to regulate the issue and redemption of national bank notes. The national banks, he believes, should be authorized to form an association having as its sole purpose the issue of notes on the joint credit of its members. The members must have aggregate capital stock of at least \$250,000,000. The association would establish branches in every city of 100,000 population

or over for the redemption of notes. Each member would deposit lawful money with the association for the redemption of notes. The board of managers of the association would work in conjunction with the Treasury Department.

See NATIONAL MONETARY COMMISSION, FINANCIAL REVIEW AND BANKS AND BANKING.

CERVERA Y TOPETE, PASCUAL, COMTE DE JEREZ. A Spanish admiral, died on April 3, 1909. He was born at Jerez, province of Cadiz, in 1839. He was educated at San Fernando (1848-51) and served in the next succeeding years on several training ships. He served with distinction during the campaign against Morocco in 1859, and was made a first lieutenant. In 1862 he took part in the expedition against Cochín-China, and was afterwards appointed attaché of the Spanish legation at Washington. Following this he was made captain, and commanded a vessel sent to Peru during the war of 1866. On the outbreak of the Ten Years War in Cuba (1868-78) Cervera was engaged in blockading Cuban ports, but was recalled and made Secretary of the Navy. He was advanced to the rank of admiral, and soon thereafter given command of the *Pelayo*, the earliest first-class battleship of the Spanish navy. He was next made adjutant to the Queen Regent, and was chief of the Spanish Commission sent to the European Naval Conference in London in 1891.

Admiral Cervera vigorously opposed war with the United States in 1898, on account of the unpreparedness of the navy for such a conflict. He was, however, placed in command of the squadron sent to America. This consisted of the cruisers *Infanta Maria Theresa*, *Cristóbal Colon*, *Almirante Oquendo*, and *Viscaya*, and the torpedo boat destroyers *Terror*, *Furor*, and *Pluton*. The squadron sailed from Cadiz on April 8, and successfully eluded the American fleet, reaching Santiago de Cuba about May 19. The harbor was at once blockaded by the American fleet under Admiral W. T. Sampson. On July 3, at the command of his government, and under his own protest, Cervera made a dash from the harbor with his squadron. In the running fight which followed, his vessels were entirely destroyed, and he was taken prisoner. He was detained in the United States until September 12. His courage and dignity commanded high admiration, and he was treated more as an honored guest than as a prisoner of war. On his return to Spain Admiral Cervera was subjected to a perfunctory court-martial and was acquitted. His published account of his expedition justified his protests made prior to the war. It showed a remarkable condition of unpreparedness and inefficiency in the Spanish navy. In 1902 Admiral Cervera was appointed chief of staff of the navy, and in 1903 he was

made a life senator. In 1907 he was chief of the maritime district of Ferrol. For two years prior to his death he lived in retirement.

CEYLON. An island in the Indian Ocean, south of Hindustan; a British crown colony. Capital, Colombo.

AREA AND POPULATION. Area, 25,332 square miles. Population (1901), 3,578,333; estimated, December 31, 1907, 3,988,064; December 31, 1908, 4,038,456. The Sinhalese in 1901 numbered 2,331,045; Tamils, 953,535; Moormen, 228,706; Burghers, Eurasians, 23,539; Malays, 11,963; Europeans, 9509; Veddahs (aborigines), 3971. Excluding the military, the shipping, and the Boer War prisoners, the population in 1901 totaled 3,565,954, 65.8 per cent. of whom were engaged in agriculture, 17.2 per cent. in manufactures, and 3.5 per cent. in commerce. The immigrants on tea estates formed 12.4 per cent. of the population. The birth rate in 1907 was 32.8 per 1000 inhabitants; the death rate, 30.1. Colombo had (1901) 158,228 inhabitants; Galle, 37,316; Jaffra, 33,879; Kandy, 26,519.

EDUCATION, ETC. There were in 1907 government schools 616, with 75,589 pupils; grant-in-aid schools 1680, with 166,234 pupils, and 1758 unaided schools, with 33,669 pupils. The Technical College had 256 students. The Royal College and other high schools receive grants-in-aid.

The population was divided according to religions (1901) as follows: Buddhists, 2,141,599; Hindus, 828,622; Mohammedans, 248,140; Christians, 362,018.

PRODUCTION. There are 2,449,012 acres (or about one-fourth of the island) under cultivation, and 662,152 under pasture. The areas under leading crops in 1908 were: Coconuts, 915,373 acres; rice, 680,239; other grain, 106,635; tea, 553,348; rubber, 131,695; cinnamon, etc., 54,423; cocoa, 39,788; tobacco, 14,060; coffee, 1910; cinchona, 1066. Cardamoms, cocoa, and camphor are produced. The live-stock in 1907 numbered 1,559,271 cattle, 98,746 sheep, 3985 horses, 179,123 goats, and 96,305 swine. Ceylon is rich in precious stones, having (1907) 3366 gem quarries. The pearl fishery in the Gulf of Mannar yielded (1906) a revenue of Rs. 1,449,192 (1 rupee = 33.44 cents). There were (1907) 947 plumbago mines. The government salt monopoly yielded in 1908 a revenue of Rs. 1,760,551. Native industries are gold, silver, ivory, and tortoise shell work, pottery-making, wood-carving, metal work, etc.

COMMERCE. The total imports were valued in 1907 at Rs. 129,316,757; exports, 129,570,001; in 1908, at Rs. 130,291,908 and 130,170,406 respectively. Coal, cottons, machinery, metals, fertilizers, and petroleum are principal imports. The chief exports and the amounts for 1907, 1908 and the first six months of 1909 are given as follows:

	1907	1908	1st ½ of 1909
Black tea, lbs.	169,923,623	167,089,011	87,262,118
Dried cocoanuts, lbs.		26,486,222	10,526,919
Cocoanuts, number		20,509,824	
Cinnamon, lbs.		5,745,139	2,469,900
Green tea, lbs.	5,526,563	5,216,805	2,462,190
Citronella oil, lbs.		1,276,965	878,697
Rubber, lbs.	530,908	831,905	497,677
Copra, cwts.	347,970	729,140	
Cardamoms, lbs.		665,217	338,060
Cocanut oil, cwts.	460,683	629,122	185,940
Plumbago, cwts.	614,156	489,338	289,789

The trade with Great Britain amounted to £1,759,320 for imports and £5,127,398 for exports in 1908.

COMMUNICATIONS. In 1909 there were 567 miles of railway open to traffic; the post and telegraph offices numbered 402, and there were 4063 miles of telegraph wire. There were in the merchant marine, January 1, 1908, 142 sailing vessels of 12,229 tons and 9 steamers of 1537 tons. Shipping entering Ceylon ports (1906), 6,697,329 tons.

FINANCE. The unit of value is the rupee, worth 33.44 cents. The revenue and expenditure in 1908 were Rs. 35,572,850 and Rs. 35,032,055 respectively, against 36,573,844 and 35,291,521 in 1907. The principal sources of revenue in 1907 were: Government railways, Rs. 10,741,008; customs, 9,189,922; arrack, rum, and toddy license, 4,260,850; stamps, 2,521,453; port and harbor dues, 2,135,632; sale of government timber and salt, 2,007,723; land sales, 1,914,071. Principal items of expenditure: Interest on public works (annually, recurrent and extraordinary), Rs. 7,066,516; establishments, 9,009,171; interest on loans, 3,651,063; military expenditure, 1,601,310; pensions, etc., 1,492,652; other charges, 10,026,733. The public debt amounted in 1908 to £4,566,402 and Rs. 3,111,086, incurred entirely for public works and railways. The Ceylon Savings Bank had (December 31, 1906) deposits amounting to Rs. 4,679,480; the Post-Office Savings Bank (1907), Rs. 2,117,119. Five external banks have establishments in Ceylon.

GOVERNMENT. Ceylon is administered by a governor, aided by an executive council and a legislative council. Governor (1909), Sir Henry Edward McCallum.

The Maldivé Islands, lying 500 miles west of Ceylon, are nominally tributary to the Ceylon government. The hereditary Sultan resides at Malé. The natives (about 30,000) are Mohammedans.

CHAMBERLAIN, GEORGE EARL. An American public official, United States Senator (Democrat) from Oregon. He was born in Natchez, Miss., in 1854, and graduated from Washington and Lee University in 1876. In the same year he removed to Oregon. He was elected to the legislature in 1880 and was district attorney of the Third Judicial District from 1884 to 1886. In 1891 he was appointed Attorney-General of the State and was elected to the same position in 1892, serving until 1895. He was elected district attorney for the Fourth Judicial District for a four-year term in 1900, and was elected Governor of the State for the terms 1903-7 and 1907-11. Senator Chamberlain is a Democrat, but in spite of this was twice elected Governor in the strongly Republican State of Oregon, and occupies the unique position of having been elected United States Senator by a Republican legislature. This was brought about as the result of the operation of the primary laws in Oregon, by which the voters in 1908 indicated Senator Chamberlain as their choice for United States Senator. The legislators elected were pledged to vote for the people's choice and therefore were obliged to elect Senator Chamberlain, although the majority of them opposed him politically.

CHANG CHIH-TUNG. A Chinese states-

man and scholar, died October 4, 1909. He was born in the province of Chih-li in 1837. From his early youth he showed exceptional literary ability and to this was due his rapid advancement and national reputation. His reputation outside of China is associated chiefly with the vice-royalty of the Hukuang Province, which he held from 1889 until 1907. He took a strong stand in 1900 against the Boxer uprising, and largely through his efforts the peace of the Yang-Tsze provinces was maintained. His administration of his province was clean-handed, but he lacked capacity for management and patience in organization. His vanity made him an easy prey to flatterers and dishonest subordinates. In 1898 he published a pamphlet intended to draw his countrymen away from following after strange gods. His hostility toward foreign civilization showed in 1904 when he contemptuously criticised Sir Robert Hart's proposals for reform in the collection of the land tax. Although Chang Chih-Tung, judged by Western standards, was not conspicuous as an administrator or statesman, he had a high reputation in China as a literary figure.

In his relations with foreigners he followed the traditional Chinese policy of "playing off one barbarian against the other." He instinctively disliked and distrusted all, but used each and all so long as he could do so for his country's benefit and with a keen insight into the exigencies of European politics. He was considered to be the greatest scholar in the Chinese Empire, and although he held a lucrative office forty-four years and had been Governor-General in succession of three of the richest vice-royalties of the empire, he died a poor man. At the time of his death he was a grand councillor of the empire.

CHAPMAN, HENRY CADWALADER. An American physician and naturalist, died September 8, 1909. He was born in Philadelphia in 1845 and graduated from the University of Pennsylvania in 1864, and from the medical department of the same institution in 1867. After study abroad, he became, in 1870, lecturer on anatomy and physiology in the University of Pennsylvania. In 1880 he was appointed professor of the institutes of medicine and medical jurisprudence in the Jefferson Medical College. From 1875 he was curator of the Philadelphia Academy of Natural Sciences. His studies of the fauna and flora and the deep sea life of the coast of Maine are very valuable. Among his published works are *Evolution of Life*; *Treatise Upon Human Physiology*, and *Medical Jurisprudence and Toxicology* (1903). He contributed also to medical journals.

CHARITY ORGANIZATION. The year 1909 has shown a steady growth of the organizing spirit manifest during the last few years in dealing with relief work and philanthropy. The conferences have been more numerous, as a rule better attended, and uniformly more harmonious in their relations one to another. In addition to the National Conference of Charities and Corrections there took place State conferences, an international conference, and a Canadian conference.

At the thirty-sixth session of the National Conference of Charities and Corrections, held at Buffalo, in June, the attendance showed a

gain both from the more conservative States and from the newest States. There was, too, a tendency toward broadening the work of the Conference; almost every department has annexed some new movement more or less closely related to itself. "Children" now supplants "defectives" as a subdivision, and "Neighborhoods and Municipalities" has been annexed to "Needy Families." In the more technical sections, such as "Immigrants" and "Statistics," expert talent is introducing a higher degree of efficiency. The Conference draws to its vicinity many kindred movements, denominational and sectional, which contribute to greater systematization of the nation's relief work, and more ready diffusion of ideas. The directors of the Russel Sage Foundation, board of probation, and those interested in juvenile courts met in the Conference week.

The election of Jane Addams of Chicago as president of the 1910 Conference, which will meet in St. Louis, was a tribute both to her and to the work done by many women in the various committees. Alexander Johnson, Fort Wayne, Ind., was elected general secretary.

In the section meeting devoted to Immigrants, a paper on "The Immigrant Finding Work," brought out clearly the part that unreliable employment agencies play in creating vagrants. The adjustment of schools and courts to the immigrant's needs, and a discussion of the care of the immigrant's children also were carefully treated.

Statistical data on the various problems treated in all the sections was furnished by the statistics section, and added greatly to an intelligent planning of the next year's work.

In the section devoted to Lawbreakers, Dr. Katharine Bement Davis described the reform system at the New York State Reformatory in Bedford, where girls enjoy working at such unusual open air occupations as concrete walk laying, stair-building, and ice harvesting. Constructive education instead of mere protection of property and the tendency of too many laws against petty misdemeanors to increase their prevalence were discussed by other speakers.

The discussions on public health treated the milk problem, and particularly that of milk for babies, in an exhaustive manner; they also developed the need of more effective use of the already large body of knowledge on sanitation. Increased efforts are to be made in the future to secure greater publicity for the proceedings of the Conference and for the activities and policies represented in it.

State conferences were held during the fall in Illinois, Pennsylvania, Rhode Island, Missouri, New York, Ohio, Indiana, Iowa, and Massachusetts. The New York conference was the occasion of an exhibition provided by private relief institutions of the State. The discussions were along the same general lines as the National Conference.

In October, the New York School of Philanthropy opened an evening course for social workers. There is a small registration fee, and examination and a diploma to all who complete the course are parts of the idea. The Society of Jewish Social Workers of Greater New York raised a guaranty fund of \$1000 to start the course.

CANADA. The Canadian Conference of Charities and Corrections was held at Toronto,

October 19-21. The attendance was very small, in spite of special rates on the railroads. The following subjects were treated in the meetings: The connection between unsanitary homes and crime; work bureaus as means of helping city families to get back to the farms; more closely systematized probation; the Church's opportunity to engage in social betterment; the indeterminate sentence; and the relief of indigent tubercular patients. Mr. J. J. Kiko testified to the good influence of woman probation officers on truants and their families. The new president is J. P. Downey, of Guelph, Ontario; F. M. Nicholson, of Toronto, was elected secretary-treasurer. The next meeting will be held in Guelph, Ontario, in 1910.

FRANCE. Seven international philanthropic societies in joint sessions at Paris in June, 1909, approved plans for a congress at Copenhagen in 1910. There were representatives present from nearly all countries of Europe, and the phases of relief work peculiar to each received critical attention. M. Loubet, former President of France, and M. Le Jeune, Minister of State in Belgium, were among the speakers. At the proposed Congress of Copenhagen the following subjects will be particularly emphasized: Relief of sick in rural communities; relief of aliens and a study of forms of international agreement; women in relief work; and relief of widows with young children.

CHARTER REFORM. See **ELECTORAL REFORM.**

CHASE, SOLON. An American farmer and former politician, died November 23, 1909. He was born at Chase Mills, Maine, in 1822, and was educated in the public schools and in the Gorham Seminary. He was a lecturer, editor and stump speaker and was one of the leading and most active campaigners for the Greenback Labor party from 1870 to 1884. In these campaigns he became one of the most widely known and picturesque figures. He was a candidate for Congress and made a tour of the Eastern part of the country with an ox team and wagon and made speeches from the vehicle. When the Greenback party died out he began the publication of a weekly paper and during his last years he wrote for various newspapers.

CHAUCHARD, HIPPOLYTE FRANCOIS ALFRED. A French merchant and art collector, died June 5, 1909. He was born in Paris in 1821 and began his business life as a clerk in a shop in that city. In 1854 he founded the Magasins du Louvre, in which he introduced several innovations which have since become features of great department stores—the ticketing of goods, the privilege of return or exchange, and widespread and original advertising. The business grew to great proportions, and in 1885 M. Chauchard retired, retaining, however, a share of the stock, which was said to yield him over \$1,000,000 yearly. He gathered together a wonderful collection of pictures and other works of art. Among them were seven of Millet's pictures, including "The Angelus"; forty Corots, several Rousseaus and Meissoniers, and many valuable bronze statues, tapestries, etc. To these treasures the French nation became the sole heir. M. Chauchard gave liberally to charity. He had many eccentricities, among them the fear of dying poor. He built for himself a mausoleum at an immense cost. His funeral in Paris was at-

tended by riots, in which an assemblage of 200,000 people took part.

CHAUTAUQUA INSTITUTION. A system for the advancement of popular education, founded at Chautauqua, N. Y., in 1874 by John H. Vincent and Lewis Miller. The local work of the Institution is done in connection with a summer assembly in a series of summer schools. The year 1909 was notable for several reasons, among them for the continuance of the general programme and for the popular audiences, the most notable event of which was a concert by the New York Symphony Orchestra before an audience of 8000 people. Important symposia were conducted on the following subjects: Religious Education, Social Service, Problems of Immigration, Health and Efficiency, and Country Life. The summer schools in 1909 were largely attended, the chief feature being the introduction of an increased number of courses in pedagogy, both theory and subject matter, and the installation of the Arts and Crafts School in a new building under a new director, Henry Turner Bailey. During the year the new Arts and Crafts building was completed and a new Post-Office and Print Shop were erected at an expense of \$30,000. The Commercial building, burned in October, 1908, was rebuilt at an expense of \$45,000.

CHEESE. See DAIRYING.

CHEMICAL AFFINITY. See CHEMISTRY.

CHEMICAL SOCIETY, AMERICAN. See CHEMISTRY.

CHEMISTRY. GENERAL PROGRESS. The progress of chemical science during 1909 was entirely normal. No startling chemical discovery came once more to deal a blow to inveterate notions of what is possible and what is impossible, and to arouse a new enthusiastic confidence in the future. Nor did any sudden, brilliant generalization come to disturb the international host of chemical investigators and attract them away from their accustomed fields of research. This, however, does not mean that chemistry had for the time being come to a standstill. On the contrary, the amount of new knowledge gathered during the year exceeded by far that gained during any of the previous years. The number of university research laboratories is rapidly increasing. Even colleges seem to be waking up to the fact that students can receive genuine scientific training, that is, training in the art of grappling with practical problems, only in an atmosphere of enterprise and research. College professors of science, especially of chemistry, are therefore more and more expected, not only "to know what the Germans have done," but to be on the level of independent thought and practical scientific activity themselves. The consequence is an increasing number of original contributions even from collegiate laboratories.

It would be impossible to give, within a limited space, an adequate account of the progress of chemistry during the past year. The brief and fragmentary account, given below, of a number of typical contributions will merely serve to indicate the principal directions of chemical research.

In the direction of knowledge of *chemical affinity*, one finds with pleasure an experimental study published under the names of Ipatieff

and Verchovsky. According to an old-fashioned notion, originating perhaps in medieval alchemy, a metal combines with an acid radicle, driving out and taking the place of the hydrogen of the acid, because metals have a greater "affinity" than hydrogen for acid radicles. According to an enlightened modern view of chemical affinity, the latter is akin to simple mechanical pressure, and therefore simple mechanical pressure can also modify it. Thus, the affinity of hydrogen for an acid radicle is not invariable in magnitude, but depends in a very pronounced manner upon the state of compression in which the hydrogen happens to be. The greater the pressure, the more intense the chemical affinities of hydrogen. Metals tend to dissolve in liquids, especially in water, under all conditions. The quantitative measure of that tendency, called technically the electrolytic solution tension of the metal, is also a measure of its chemical affinities. The chemical affinities of the metal, too, depend in a pronounced manner upon the external physical conditions of temperature, volume, and pressure. But, then, if under one set of conditions a given metal has a greater affinity than hydrogen for an acid radicle, the affinities may be reversed in magnitude under another set of experimental conditions. It is this variable nature of chemical affinity, its dependence upon external physical conditions, that has only been realized by chemists in recent years. Guided by the new conception of affinity, Nernst and Tamman undertook, some years ago, to keep metallic zinc from combining with and dissolving in sulphuric acid by enclosing them together in a tube containing highly compressed hydrogen gas. Under the conditions chosen for the experiment, the affinity of zinc for the sulphuric acid radicle was equal to the affinity for that radicle possessed by hydrogen under a pressure of 270 pounds per square inch. If the pressure of the hydrogen fell below this figure, the zinc was victorious in its competition with the hydrogen for the possession of the acid radicle. As soon as the hydrogen pressure attained its 270 pounds per square inch, the zinc stopped dissolving in spite of remaining in contact with much free acid. It was reasonably expected that an increase of the hydrogen pressure beyond 270 pounds would result in the usual reaction being reversed, that is, in the zinc being driven out of solution by the hydrogen. But, for some reason or other, this part of Nernst and Tamman's experiment gave a negative result. The 1909 publication of Ipatieff and Verchovsky contains an extended series of results corroborating the modern view of affinity in every direction. Following are some of their most important observations: At temperatures above 120° C. (248° F.), hydrogen under comparatively small pressure drove metallic copper out of a copper acetate solution. At a higher temperature, hydrogen under a pressure of 3000 pounds per square inch readily overcame the affinities of mercury and silver for acid radicles and precipitated these metals in their free state out of aqueous solutions of their salts. The metals nickel, copper, lead, and bismuth were likewise overcome by compressed hydrogen. As in all research, certain obscure phenomena were encountered during this study also. Perhaps they will enhance the alluring power of this chapter of chemical research and keep it from being

abandoned by chemical explorers. But the main principle of the modern view of chemical affinity may now be considered as demonstrated by experiment.

In the course of the year Landolt published a final general summary of his own observations, extending over a period of eighteen years, and of the experimental results of other investigators, on the subject of the *conservation of mass* during chemical processes. The law of the conservation of mass, perhaps the most fundamental law in all natural philosophy, was first established by the founder of modern chemistry, the Frenchman Lavoisier. Lavoisier is well known to have been only a moderately good manipulator, and besides, the experimental means at his disposal were poor as compared with those of present day chemistry. And so, while the conservation of mass is indirectly supported by innumerable quantitative analyses carried out during the nineteenth century, the question has been raised in recent years as to whether chemical processes may not involve (perhaps by transformation into the imponderable ether) such minute losses of matter as would escape the attention of the chemist engaged in ordinary analytical work. Other investigators have come out with statements at least throwing doubt on the absolute validity of the conservation principle. Landolt, after eighteen years of the most painstaking experimental work, involving no less than fifteen different chemical reactions, and carried out with all the means and methods of modern experimental art, now puts an end to all doubt on the subject. Whatever, then, be the ultimate fate of the radio-active atom, and of material atoms in general, the balance fails to reveal the slightest deviation from the law of the conservation of mass.

An interesting paper concerning the *critical temperature* of substances was published by Bradley, Browne, and Hale. Since the researches of Andrews, memorable in the history of science, it is generally taught that for every substance there is a temperature above which it cannot exist in the liquid state no matter how great the pressure exerted upon it. That temperature is generally termed the critical temperature, or the critical point, of the substance. While certain theoretical considerations seem to render the existence of such a sharply defined temperature point *a priori* improbable, all experience hitherto seemed to have established it as a matter of indubitable fact. The authors of the recent paper in question have carefully reexamined the behavior of carbonic acid gas at, and immediately above, its critical temperature, which is generally known to lie at about 31.1° C. (87.98° F.). At temperatures between this critical point and about 38° C., that is, in an interval of about seven degrees above the critical point, Bradley and his collaborators were able to observe ripples—apparently liquid carbonic acid—running down the sides of the tube every time the volume occupied by the substance was more or less suddenly compressed. The authors conclude that a liquid does not really cease to exist as such at its critical point, but that, becoming equal in density to its own vapor, it no longer forms a continuous layer occupying a separate part of the tube, but distributes itself throughout the volume of the latter in the form of fine particles, which are liquid

nevertheless. The observations are not merely curious, but full of general scientific interest, because of their bearing on the problem of the states of aggregation, than which there is no more important problem in all physico-chemical science.

A promising study of the so-called *liquid crystals* was begun in course of the year by Von Weimarn at St. Petersburg. Since the introduction of the concept of liquid crystals into science by Lehmann twenty years ago, numerous attempts have been made to decide the question as to whether the turbid liquids said to be crystalline are really homogeneous or nothing but fine suspensions. Von Weimarn has now attacked the problem with the ultra-microscope. The conclusion which he draws from his experiments is that crystalline liquids are not homogeneous, as Lehmann and with him a majority of chemists and physicists are inclined to believe, but suspensions of exceedingly fine crystalline solid particles, in which, however, the crystal forces at work are exceptionally weak and which, moreover, are in mobile equilibrium with the liquid in which they are suspended. It would be rash to accept Von Weimarn's conclusion on the basis of the limited experimental evidence he has yet produced. On the other hand, it seems safe to hope for results of no inconsiderable value from a continuation of ultra-microscopic studies of the liquid crystalline state.

A valuable contribution to the methodology of *direct osmotic pressure measurement* was made by the Earl of Berkeley working in collaboration with Mr. Hartley. The principle of the new method proposed by these investigators is, briefly, as follows: It is well known that when a solution, say, of cane sugar, is placed in a cell with semi-permeable walls (usually porous porcelain with the pores clogged up with ferriocyanide of copper), and the whole immersed in pure water, water will enter the cell, increasing the pressure within it, until that measure has become equal to the osmotic pressure of the solution. The velocity with which water will begin to flow into the solution will obviously be proportional to the osmotic pressure. And therefore, it ought to be possible to measure the osmotic pressure by measuring the initial rapidity of flow of water into the cell. It is this simple principle that Berkeley and Hartley have succeeded in developing into a practical working method and have utilized in carrying out a series of osmotic pressure measurements. Measurements of the flow of water into the cell yield figures proportional to the osmotic pressure involved. In order to obtain the osmotic pressures themselves, Berkeley and Hartley also measured the velocity with which water would enter the cell under the influence, not of the osmotic pressure within the cell, but of ordinary hydrostatic pressures from without, with nothing but pure water both inside and outside the cell. If the precaution is taken of keeping the temperature all but absolutely constant, the method yields figures of a high degree of precision. Even very small osmotic pressures can be readily determined by the new method.

Arthur A. Noyes, with a group of assistants and students, continued his able investigations of *aqueous solutions of salts*. A paper, under the names of Noyes and Johnston, published in the September number of the *Journal of the*

American Chemical Society, deals with solutions of more complex salts than had hitherto been studied. It has long been known that salts containing only simple univalent ions, such as ammonium chloride, sodium nitrate, potassium bromide, etc., are associated electrolytically to all but exactly the same extent in solutions containing equivalent quantities of them. Noyes and Johnston's study showed that this principle is true, not only for salts of the univalent, but for a set of salts of any other valence type. To use their own language, "For different salts of the same ionic type at any definite concentration and temperature the degree of ionization is approximately the same." Early in the history of the electrolytic dissociation theory, Arrhenius had shown that, curiously enough, with rising temperature the degree of dissociation of a dissolved salt decreases. That early study dealt, again, with only salts of the simplest valence type. Noyes and Johnston's investigation now shows also this principle to hold in the case of complex salts, and demonstrates, in fact, that the more complex the salt the more rapid the fall of its dissociation with rising temperature. It may be observed, in passing, that the apparatus employed in this investigation was the conductivity bomb invented by Arthur A. Noyes himself and permitting of conductivity measurements at almost any desired temperature. A most important result of the investigation was the discovery of a new set of discrepancies between the degree of dissociation indicated by the electrical conductivity and that indicated by the freezing temperatures of the solutions examined. The agreeing results yielded years ago by the two different physico-chemical methods in question formed one of the main props of the dissociation theory and did much toward its incorporation in science. The discrepancies now discovered by Noyes and Johnston, together with some discrepancies observed before, point to the incompleteness of our knowledge of solutions and seem to render necessary a serious modification of the theory of solutions now so generally adopted. Thus science grows, discovers its own weak points, then strengthens them by new growth.

Two contributions, the first by Rosanoff, Lamb, and Breithut, the second by Rosanoff and Easley, described a new method for measuring the *partial vapor pressures of binary mixtures*, gave the results of an extensive series of measurements, and developed a thermo-dynamic theory of the results. The fundamental principle of the new method is stated in one of the papers in the following terms: "If a mixed vapor of constant composition is passed through a liquid mixture of the same components, the composition and temperature of the liquid will steadily change until complete equilibrium, as regards both temperature and pressure, has been established. A stationary temperature will demonstrate the attainment of equilibrium. The vapor bubbling through the liquid may then be condensed in any desired quantity and analyzed. Identity of composition of two or more consecutive samples of the condensed vapor will be additional proof that perfect equilibrium had been established between liquid and vapor. On the other hand, the liquid can be drawn off and its composition determined by analysis." The new method is valuable in the first place because it carries its own check

of the results. Furthermore, as the published results show, the total probable error involved in the measurements does not exceed one-tenth of one per cent. In other words, the method is highly reliable and precise. One of the two papers points out that no property of a substance is more characteristic of its intimate physical condition than its vapor pressure, that in mixtures the partial vapor pressures are the immediate expression of the molecular condition and mutual influence of the components, and that therefrom follows the important rôle played by vapor pressures in physico-chemical science even at present, and the still more important part which that property is destined to play in the development of knowledge in the future. The second of the two papers proposes a generalization of Raoult's law, making it valid, not only for infinitely dilute solutions, as heretofore, but for solutions of all concentrations, and for binary mixtures of organic substances in general. The results yielded by this theoretical generalization agree with Rosanoff and Easley's measurements all but perfectly.

In organic chemistry no more important work was carried on than that by Emil Fischer on the *proteins*. The contents of the cells from which living tissues are built up consist of highly complicated albuminous bodies, called proteins. These albumens, unlike any other naturally occurring substances, will alone, in conjunction with water and salt, furnish nourishment sufficient for animal life and hence are of extreme importance from a physiological as well as chemical point of view. The synthesis of such substances Fischer is fast approaching step by step in the laboratory. The difficulties of investigating the constitution of such compounds are innumerable, they being non-crystallizable, non-volatile substances, and consequently purifiable with difficulty. They are extremely sensitive to heat, acids, and alcohol, and therefore very liable to be altered during ordinary chemical processes. Their molecular complexity is very great. Molecular weight determinations by the freezing point method show egg-albumen, for instance, to have a molecular weight of 15,000, and hæmoglobin one of 50,000. Fischer has attacked the gigantic problem of determining the constitution of these albuminoids by first splitting them up by hydrolysis into simpler substances, amino-acids, whose constitutions were determinable, and whose syntheses were consequently possible. Nearly all of the numerous amino-acids thus obtained from the naturally occurring albumens have now been synthesized, and Fischer is engaged in combining these synthetic acids into a single molecule whose reactions shall resemble those of the original albuminoids. The complexes Fischer has now synthesized, while not themselves of the protein class, show sufficient resemblance to the naturally occurring substances to allow us to deduce the probable constitution of at least part of the albumen molecule. By the recombining of these amino-acids, Fischer has among some three hundred complexes synthesized an octadecapeptide named *levo-leucyl-triglycyl-levo-leucyl-triglycyl-levo-leucyl-octaglycyl-glycine*. This extraordinary substance has all the properties of the natural albumens, it is the most complicated system of known constitution hitherto synthesized. Its molecular weight is 1213. As, however, the

simplest occurring protein has a molecular weight approaching 10,000, a considerable advancement is still necessary before a true albuminoid can be synthesized.

Steady advancement in the *synthesis of alkaloids*, the most important of which are found in the tissues of plants, continues to be made, owing largely to the pharmacological importance of these substances, which renders a knowledge of their structure of the utmost value. Of the newest synthetic alkaloids, *stovaine*, named after its discoverer, E. Fourneau (French for stove) attracted much attention, owing to its marked anæsthetic properties. Stovaine, which is the hydrochloride of 1-dimethylamino-2-ethyl-2-propanol-benzoyl ester, is merely one of a numerous class of esters of tertiary alcohols synthesized by Fourneau, all of which act as local anæsthetics. In comparison with cocaine, which it promises largely to supplant, it has about the same anæsthetic power, but it is only one-third to one-half as toxic, and its effects subside more rapidly. It dilates the blood vessels, whereas cocaine contracts them. Likewise, it exerts a tonic action on the heart. A mixture of stovaine and strychnine is used for producing spinal anæsthesia. The discovery of the valuable physiological properties of this substance is stimulating a systematic search for esters of other amino-tertiary-alcohols, having the same properties in an even more marked degree, if possible.

A new example of what is now known as "negative catalysis" was found by Chapman and MacMahon in the effect of the presence of oxygen upon the reaction between chlorine and hydrogen. The subject as mentioned here is a contribution to that most important chapter of chemical dynamics dealing with *catalytic action*, which, according to Oswald's definition, consists in a hastening effect that the presence of certain substances has upon many chemical reactions. The most celebrated example of such an effect is the hastening by spongy platinum of the combination of sulphur dioxide with oxygen, which has revolutionized the sulphuric acid industry. Other well known and remarkable cases of reaction catalysis have in recent years been discovered, by Baker and Dixon, in the action of the merest traces of moisture on the reaction between hydrogen and oxygen, as well as between hydrogen and chlorine. Thus, the reaction between absolutely dry chlorine is so exceedingly slow, even at high temperatures, that ordinary chemical methods are incapable of detecting it. But so great is the hastening effect of the merest trace of water upon this reaction, that the introduction of a trace of moisture into the reacting mixture produces a violent explosion. It is easy to see why chemists are eagerly searching for more and more examples of catalysis. They hope, with reason, to gain insight into the mechanism of chemical action itself, when catalysis is understood. The number of known cases of negative catalysis, that is, the slowing up of reactions by the presence of foreign substances, is small as compared with the number of cases of positive catalysis. About three years ago such a case was discovered by Heinrich Goldschmidt in the action of water upon the combination of organic acids with alcohols. According to Chapman and MacMahon, the reaction between chlorine and hydrogen, which is

so enormously hastened by the presence of water, is rendered much slower by the presence of oxygen gas. In fact, they find the velocity of formation of hydrochloric acid gas from hydrogen and chlorine to be inversely proportional to the amount of oxygen present.

An interesting contribution to our knowledge of the *Walden inversion* was published in course of the year by McKenzie and Clough. The Walden inversion is one of the most remarkable puzzles of present day organic chemistry. Since Pasteur's classical researches on the tartaric acids, it had been supposed for many years that an optically active organic substance could not possibly be transformed into its antipodal variety except by racemization. In other words, an optically active substance, if changed at all, would be transformed into a pair of substances of equal and opposite rotatory powers, the resulting "racemic mixture" being of course optically inactive. The first exception to this law was discovered a few years ago by Walden, and since then several further exceptions have been reported by Emil Fischer and other investigators. McKenzie and Clough's paper describes a method by which dextro-mandelic acid may be transformed into levo-mandelic and back again. When, namely, phosphorus pentachloride is allowed to act on dextro-mandelic acid, it is transformed into a chloro-phenyl-acetic acid. This, in turn, treated with ammonia, yields an amino-phenyl-acetic acid. Finally, the action of nitrous acid upon the last-named compound, gives a mandelic acid. But, and this is the main point in the matter, the mandelic acid so obtained is not the dextro-mandelic acid started with, but the antipodal levo-mandelic acid. Conversely, if levo-mandelic acid is started with, the consecutive action of phosphorus pentachloride, ammonia, and nitrous acid, leads to the dextro-rotatory variety of mandelic acid. A rational theoretical explanation of the remarkable phenomenon of the Walden inversion has not yet been advanced. Meanwhile, as regards the step of McKenzie and Clough's process at which inversion takes place, these authors justly believe that the inverting agent is ammonia. Their view is corroborated by the observation that levo-amino-phenyl-acetic acid, inverted into dextro-bromo-phenyl-acetic acid by the action of nitrosyl bromide, is re-obtained in its original form by the action of ammonia upon the latter compound. The mechanism of McKenzie and Clough's process would, therefore, appear to be very much the same as that of the inversion of valine described by Fischer and Scheibler in 1908. A theory of the Walden inversion, when it appears, will undoubtedly make a new epoch in organic chemistry.

Claude succeeded in re-determining the amounts of *hydrogen, neon, and helium in the air*. According to these newest measurements, the air contains 0.0001 per cent. hydrogen gas, 0.0005 per cent. helium and 0.0015 per cent. neon. No wonder that one hundred years of air-analyzing by ordinary chemical methods had failed to reveal the presence of these gases.

An international group of investigators, with Theodore William Richards, of Harvard, by far the most important figure in the group, continued work on the determination of those important constants of nature, the atomic weights of the chemical elements. Richards's collected papers on the atomic weights, published during

the year in the form of a volume of nearly 900 pages in German, is a towering monument for American science of the past twenty-five years. The international committee of atomic weights adopted a number of recently published determinations, of which the most important follow. On the basis of William A. Noyes's synthesis of water, and of a number of older data, the atomic weight of hydrogen is 1.00779. On the basis of determinations by William A. Noyes and Weber, and by others, the atomic weight of chlorine is 35.460. The atomic weights of some of the other elements are: sulphur, 32.070; lead, 207.10; cadmium, from 112.50 to 112.88; tellurium, 127.5 (?); palladium, 106.75; niobium, 93.5; radium, 226.4. Several speculative papers were published, as usual, during the year, attempting to find and explain relationships between these characteristic constants of the elements. As yet all these speculations have been like sparks in the deep night; they have neither lasted nor left any light worth speaking of.

CHEMISTRY, INDUSTRIAL. The advances made during 1909 fail to reveal any very great discoveries, although distinct progress is evident. The results seem to show careful and persistent efforts toward the improvement of details in processes together with the announcements of new products, the value of most of which can only be determined by the test of time. An interesting feature of the development of industry in the United States is shown by the endowment of fellowships in various universities by chemical manufacturing firms for the purpose of enabling the incumbent to prosecute researches on the technology of the industries concerned.

ORGANIZATIONS. In the United States the American Chemical Society, presided over by Willis R. Whitney, held general meetings in Detroit, Mich., during July 29-July 2, and in Boston, Mass., during December 27-31. New local sections have been established in Milwaukee, Wis., Cleveland, Ohio, Seattle, Wash., and Columbia, Mo. On November 5 its Nichols medal was awarded to Leo H. Baekeland for his researches leading to the discovery of bakelite. The American Institute of Chemical Engineers held its second annual meeting in Philadelphia, Pa., December 8-10, with Samuel P. Sadtler as its president. Its first meeting was in Pittsburgh, Pa., in 1908. The Society of Chemical Industry of Great Britain held its 28th annual meeting in London on May 26, and for a third time honored the United States by electing Ira, Remsen, of the Johns Hopkins University, as its president. The membership was reported as 4520. The seventh International Congress of Applied Chemistry was held in London during May 27-June 2, with Sir Henry E. Roscoe as president of honor, and Sir William Ramsay as active president. Harvey W. Wiley was chairman of the American Committee. It was decided to hold the next Congress in the United States in 1912, and for it E. W. Morley was nominated for the honorary, and W. H. Nichols for the active presidency. During October 14-23, the first annual Exhibition of Chemical Industries was held in London.

HYDROGEN AND OXYGEN. The science of aeronautics has led to the study of cheapening the cost of the buoyant gas employed in balloons. Ordinary illuminating gas has generally been used, but as hydrogen has over seven

times the lifting power of coal gas, its use is preferred. By the ordinary method of preparing hydrogen, as by the action of dilute sulphuric acid on iron or zinc, the cost was from \$4.25 to \$7 per 1000 cubic feet. A new method proposed in Germany is based on the interaction between steam and iron (in the form of borings or turnings) at a red heat whereby magnetic iron oxide is formed and hydrogen is liberated. Another process involves the reaction at 300° C. between water gas and calcium carbide. The latter substance combines with the carbon monoxide, carbon dioxide, and nitrogen present in the water gas and hydrogen alone remains in the gaseous form. The gas thus obtained does not require further purification before being conducted to gasometers for the purpose of storage. This cheapened hydrogen, 98 per cent. pure, is offered for sale at \$1 per 1000 cubic feet. The oxygen of commerce is now chiefly obtained by decomposing water electrically or by means of liquid air, from which the nitrogen, being more volatile than the oxygen, evaporates, leaving the latter. For the production of liquid air two processes are used, that of von Linde, whose machines give 600 to 1500 cubic feet of oxygen an hour, and that of Claude, whose apparatus yields 1500 to 3000 cubic feet hourly. The Linde company has in Germany four factories for the separation of the oxygen from liquefied air. In Paris the factory of Bardot is using powerful Linde machines, and two factories for producing 15,000 cubic feet are in process of construction in Hamburg and Gleiswitz. The quantity of oxygen turned out by the Linde processes alone is estimated at about 30,000,000 cubic feet yearly.

NITROGEN. Methods for the successful extraction of nitrogen from air and its combination in the form of a nitrate continue to be described. Plants have been established in Norway, Germany, Italy, and other European countries, and in Canada. The cost of the production of lime nitrogen containing 20 per cent. nitrogen is given as ranging from \$52.11 to \$60.79 a metric ton. i. e., 2204 tons. Experiments with fertilizers made synthetically in comparison with Chilean saltpetre are generally favorable to the artificial product. An aluminum nitride for use as fertilizer is being made in Mulhausen, Alsace, by first preparing an aluminum carbide by heating a mixture of alumina and carbon in an electric furnace. This is then mixed with a fresh quantity of alumina and heated with nitrogen gas. The inventor has obtained a crystalline aluminum nitride that contains as much as 34 per cent. of nitrogen. A new process for producing ammonia from atmospheric nitrogen has been developed from experiments in the synthesis of hydrocyanic acid. It consists essentially in passing over iron at a dull red heat a mixture of equal volumes of air and coal gas previously moistened by passing through distilled water. The yield of ammonia varied greatly with the temperature, the best results being obtained between 300° and 350° C.

METALS. The cheapness of aluminum is resulting more and more in its increasing use as a substitute for copper, especially where lightness is desired, as in the making of flying-machines. An alloy, called magnalium, is made by melting together aluminum and magnesium in a vacuum and then allowing the compound

formed to cool in a vacuum or under a pressure of 100 to 200 atmospheres. Different percentages of the constituent metals are used. This alloy, which has a very low specific gravity, is a solid silver-white metal that is capable of taking on high polish. Besides its use in the construction of aeroplanes, it is employed in Germany as a reflecting material for mirrors and in the manufacture of wire and tubes. The harder varieties of magnalium may be cast in the same way as aluminum. The discovery of an ore of antimony, said to contain 60 per cent. of the metal, in Servia, is of interest, as that country exported to the United States, during 1908, antimony valued at about \$3000. The extracting of the metal in Germany is by treating antimony sulphide with sulphuric acid in the presence of potassium sulphate at a temperature of 130° C. and boiling out the resulting compound formed by the antimony with the potassium salt. From this solution the oxide of antimony may be separated out by crystallization as white needles. Radium continues to occupy the attention of chemists. The sources of supply have been increased by the discovery of radium in the refuse of the abandoned copper and tin mines of Cornwall, England. An improved process for its extraction by means of which the radium is obtained directly, is announced, and the shorter time required for this process is a valuable feature. The finding of uranium deposits containing radium is reported from Portugal and from California, and from Vienna is the statement that from the deposits of Joachimsthal, the Minister of Labor of Austria will sell radium in vials, each to contain 60 milligrams of 5 per cent. radium or 30 milligrams of 10 per cent. radium, the price of such a vial to be 1080 crowns (about \$216), as the present market value of pure radium is estimated at \$60,000 a gram. Radium institutes have been founded in Vienna and in New York City for the study of radium and its applications, largely, however, with a view to its use in medicine.

METALLURGY. The steel manufacturers of Sheffield, England, early in the year announced their production of a steel with a cutting power quadruple that of any now known to metallurgy. This new product is said to be the first high speed steel that can be hardened in cold water without danger. Its improved nature is due to the hardening effect produced by the introduction of certain metals that are used instead of carbon. More recently American manufacturers have made claims for a high speed steel with a cutting power of seven times that of the ordinary steel. A torch operated by oxygen and acetylene, producing a heat of 4000° C., has been invented in Cleveland. By means of it it is possible to weld aluminum. The torch makes a flame that will cut through two inches of solid steel in less than a minute and pierce a 12-inch piece of the hardest steel in less than ten minutes.

Some of the phenomena displayed by metals under certain conditions are strikingly like those of organic bodies suffering from disease. Yellow phosphorus gradually assumes a new complexion if left to the agencies of time, finishing a beautiful dark red. The change that occurs when metallic tin crumbles to a gray powder when exposed to the cold is known as "tin plague" and it is known that the

smooth surface of the metal after an exposure to 16°-45° C. for two years becomes brittle and crystalline. "Tin plague" is even infectious, for on inoculating other masses of smooth polished tin with small portions of the crystalline metal, the "disease" spreads. Tin foil succumbs to the infection in the same way and becomes crystalline and brittle right through. It would even appear that certain metals have their "illnesses," as if their activities were interfered with by a toxic process which may be pushed in many cases to such an extent that the metal "dies." It has been found that platinum, for example, in its colloidal form, in which it is very remarkably active, is positively "poisoned" by prussic acid or corrosive sublimate, and its great energies cease to act; it is killed.

FIBRE AND WOOD. In Australia there has been found a fibre resulting from the shavings of the leaf sheaf of a sea grass, which occurs in large quantities and has great commercial possibilities. It will spin and weave in union with wool, and will also take dye equally well, being the only vegetable fibre to do this. It is practically non-inflammable, and it is to that extent a non-conductor. It does not shrink, and has more resilience than kapok. It is also found to be as good for ship calking as oakum. George D. Frankforter, of Minneapolis, Minn., describes a process of saving wood pulp from fir timber. He places small pieces of waste wood or sawdust in a steel incline over a furnace and forces distillation of the waste wood by saturating it with carbon disulphide, or gasoline, thus causing the turpentine and rosin to pass off as gases and leaving the wood pulp free from pitch and perfectly adapted to the manufacture of paper. It has been found that the wood pulp sulphite liquor, which has been regarded as without value, may be used as a road-dressing, yielding results showing that it compares favorably with oil and tar when similarly employed. A report from the Bureau of Engraving and Printing in Washington shows that it is possible to use a chemical solution or "bath" that makes the tough fibre of the banknote as good as new, does not injure the ink, and completely eliminates any dangerous bacteria. Melted wood is a novelty from France. Its preparation is described as follows: A metal receiver having a double bottom through which superheated steam passes, is filled with bits of wood; it is closed by a lid provided with a tube and stop-cock communicating with an apparatus for exhausting the air. When the wood thus kept in a vacuum is heated above 140° C., the water and other volatile substances are drawn off by means of the exhausting apparatus, after which the heating is continued for three hours. There then take place a complex series of reactions and phenomena analogous to those that accompany the distillation of wood in a closed vessel, and in this way all the so-called pyrogenous products are separated; these in turn are drawn off, condensed, and separated so that they may be utilized commercially. There remain in the receptacle only the fibrous skeleton of the wood and the mineral salts, which, taken together, constitute a fusible mass. This is allowed to cool slowly, out of contact with the air, and then placed in a second boiler which, after the air has been exhausted, is filled with nitrogen under a pressure of 1.5 to 2 atmospheres. The

whole is heated to 500° C. for two hours, and at the end of this time the wood is melted into a homogeneous, hard mass.

EXPLOSIVES. Oscar Guttman in a series of Cantor lectures delivered before the Royal Society of Arts in London in 1909 reviewed the entire field of progress in blasting and military explosives. The latest explosive to be invented in Germany is called "ammonal." It is essentially a mixture of pulverized aluminum with ammonium nitrate. Its method of operation is as follows: The pulverized aluminum, on being ignited, takes up the oxygen of the ammonium nitrate, generating an enormous amount of heat, and expanding the gaseous product with explosive force. Other explosives evolve noxious vapors, but ammonal gives off only nitrogen, oxygen, and steam, all substances beneficial, rather than harmful. A further advantage of ammonal is the complete safety of its manufacture. An explosive called "gerite" has been tested in Italy and it is claimed that it shattered steel armor plate an inch in thickness which an equal quantity of dynamite had been unable to bend. The French authorities announce that Vielle has produced an absolutely stable smokeless powder. Its ballistic qualities are slightly superior to those of the present powder but do not differ enough from the latter to necessitate the least change or modification in either weapons or projectiles.

PETROLEUM. On August 28 occurred the semi-centennial of the sinking of the first petroleum well in the United States. During 1908 the crude oil taken from below the surface in this country amounted to 183,181,084 barrels of 42 gallons each, representing at the wells a value of \$134,000,000. In fifty years petroleum has risen from industrial and commercial non-existence to the fourth place in the natural and manufactured products of the United States. Its volume and value are surpassed only by food-stuffs, cotton, and iron and steel. Although discovery and development of petroleum have progressed elsewhere, nevertheless the United States still furnishes 64 per cent. of the production of the entire world.

MISCELLANEOUS. "Bakelite" is the name of a new compound that chemically is oxybenzyl-methylenglycol anhydride, but for the sake of euphony is called Bakelite, after its inventor. It is a coal-tar product, combining the properties of amber, celluloid, and carbon. It is much cheaper than either celluloid or hard rubber, though not so flexible or elastic. It is valuable for electrical insulation where a high voltage current is used, as it greatly reduces the liability of burning out under overload. Formic acid is finding greater use than formerly. The chemically pure acid is used in small quantities for medical purposes, and also to some extent in the manufacture of fruit essences. Its chief commercial application, however, is in dyeing and tanning, where its corrosive effect is of great value. For dyeing purposes formic acid is substituted in cases in which formerly 30 per cent. acetic acid was used. As a mixture it is preferred to sulphuric acid, because it is harmless to thread and tissue and produces a more equal color effect. In the dye bath it has proved to be a better fixing agent than acetic acid, and it can be used in connection with all kinds of tissue. It gives to mercerized cotton the rustling effect of silk, and it is cheaper than citric or tartaric acid. In the silk trades it is used advantageously to produce the sheen, and

in the printing of cottons it enables the manufacturers to produce a clearer and brighter tone than is obtained by acetic acid. It may be utilized also for dissolving dyestuffs and as an antiseptic in finished materials. A non-inflammable celluloid called "cellite" is now manufactured in Germany by substituting various artificial chemical products similar to the camphor now used in preparing ordinary celluloid. Also from Germany is a new pigment called "vitratin." It is a highly lustrous paint which can be applied to surfaces with the same care as ordinary paints and has remarkable disinfecting properties, hence its use in sick rooms for the purpose of destroying disease germs is recommended. Alcohol may be obtained by exposing sawdust to sulphurous acid gas, by means of which a chemical action is induced which enables the alcohol to be generated without being mixed with or contaminated by the sulphur as was the case when sawdust was macerated in a solution of sulphuric acid by the older processes. It is claimed that wood alcohol made by this new method can be drunk or used for any purpose to which pure alcohol is applied. One metric ton (2204 pounds) of sawdust yields by this process 100 litres or 27.47 gallons of alcohol, 20 kilos (42 pounds) of acetic acid and the residue or spent sawdust is pressed into briquettes and used as fuel. The increasing scarcity of natural fuels has led to the growing use of liquid or *blau* gas, and in Germany it has been employed for lighting trains. It is described as a transportable liquid which is simply evaporated as used, and can be used for lighting, heating, cooking, soldering, and welding purposes. It is claimed that it is non-poisonous and its explosiveness is about three times less than coal gas. This gas is obtained by the dry distillation of raw petroleum and of by-products of the lignite and oil industries. Factories for the production of this gas have been established in New York and in Boston. Water purification by ozone, although successful in Europe, was not put into practical application in America until this year, when in Lindsay, Ontario, a small plant was installed where 1,500,000 gallons a day were purified at initial cost of \$7000 with the expenditure of not more than ten horse-power. The ozone is produced by the action of a high tension electric discharge on the oxygen of the air. The special value of this purification is the destruction of germs. When a bacillus comes in contact with a bubble of ozonised air the carbon of its body combines with oxygen and the bacillus is consumed completely. The resulting carbon dioxide partially rises to the surface of the water and passes off into air, and is partially taken up by the water. This gives to it its brightness and pleasant taste. Silundrum or silicified carbon is a product that is obtained when carbon is heated in the vapor of silicon. It is fire-proof, can be heated in the air up to 1600° C. without showing any oxidation. At about 1700° the silicon leaves the carbon and combines with the oxygen of the air. Silundrum cannot be melted. It is used for heating-apparatus for melting metals and for electric muffles or high temperature-ovens for laboratories. A glass has been invented in France that is refractory to the action of acids and opposes to the passage of the electric current a resistance nearly 1000 times smaller than that of ordinary glass. The new glass is used for making the disks of electro-metres and electrosopes. In these latter de-

vices thin filaments of the new glass may even be substituted for the usual gold leaves.

CHESS. The international championship chess tournament, held in St. Petersburg, resulted in a tie between Dr. E. Lasker, the world's champion, and A. Rubenstein, the Russian champion. Dr. Lasker easily won his match at Paris with D. Janewski, losing only one game in the contest. The match for the United States championship held at Lexington, Ky., resulted in a victory for F. J. Marshall, who won 7 games from J. W. Showalter, lost 2 and drew 3. The Anglo-American cable match for the Sir George Newnes trophy was won by the British team by a score of 6 games to 4. The collegians, however, fared better in their annual cable match, winning $4\frac{1}{2}$ games and losing $1\frac{1}{2}$. The seventeenth Intercollegiate Tournament was won by Princeton, with $7\frac{1}{2}$ victories and $4\frac{1}{2}$ defeats. Harvard was second and Columbia, the winner in 1908, third. In the tenth Triangular College Chess League Tournament Pennsylvania was an easy victor, losing only one game out of eight. This victory gave Pennsylvania permanent possession of the second Isaac L. Rice trophy, Cornell holding the first one contested for. A feature of the 1909 chess history was the remarkable showing made by José R. Capablanca, the young Cuban champion. He easily defeated the international player, F. J. Marshall, and in an extended tour of the United States he played 720 games, of which 686 resulted in victories.

CHICAGO. See ILLINOIS.

CHICAGO, UNIVERSITY OF. An institution of higher learning, at Chicago, Ill., founded in 1891, by John D. Rockefeller. The number of students for the year July 1, 1908, to June 30, 1909, was 5659. This includes all individuals registered throughout the year, including the summer quarter. In order to make this comparable with other institutions it should be reduced to a basis in which the unit is one individual in residence for nine months. The number thus computed would be 3639. The faculty numbered 330, including 60 assistants. There were 491,481 books in the library. A number of gifts were promised during the year, but none were actually paid in, and according to the rules of the University, are not counted as being made. The most important changes in the faculty during the year were the election of Professor C. H. Judd, formerly of Yale University, to the Headship of the Department of Education and the Director of the College of Education, and the appointment of Professor William A. Nitze, formerly of the University of California, to the Headship of the Department of Romance Languages. The University conducts evening and Saturday courses, non-residence lecture courses and correspondence study. It conducts also an academy for boys, and has close affiliation with 13 other college institutions, academies and seminaries and official coöperation with some 200 high schools in 18 States. The University publishes many volumes yearly and issues fourteen periodicals. The equipment of the University is valued at \$9,000,000. It has an endowment of about \$17,000,000 and its annual income is about \$1,250,000. The president is Harry Judson Pratt.

CHILD LABOR. The fifth annual conference of the National Child Labor Committee was held at Chicago, January 21-23. The conference was attended by a larger number of dele-

gates, from a wider area and more diverse interests, than any preceding it. Prominence was given to the agitation for a Federal Children's Bureau for the investigation of infant mortality, degeneracy, delinquency, orphanage, employment and other factors in child life. The need of modifying the educational system and school laws so as to conserve the child's health and strength and at the same time to secure his greatest development was discussed by such authorities as Dr. Andrew S. Draper and Dr. Woods Hutchinson. The latter said, "Substitute the play, the garden, the shop, for the book school. Fit the child for life and for action instead of for contemplation and culture." A Connecticut manufacturer pointed out that two serious difficulties in child labor reform are the fact that some simple work in factories is intermittent, and not requiring the qualities of a grown person, and the fact that the shortening of hours of child workers upsets the whole organization of a factory, because many children are helpers to grown persons working longer hours. Other important phases of the subject taken up were: Industrial accidents to children; the effect of child labor on future earning powers, a very high probability being established that child workers suffer considerable reduction in such power; child laborers on farms, it being stated that 1,100,000 children are at work on farms for wages; the deleterious effects of posture while at work; the substitution of a physiological test by the Roentgen ray, to determine age for present methods of declaration and certification; the contribution of child labor to child delinquency; and the bad effects of the street trades upon health, morals and future capacities.

A Southern child labor conference met at New Orleans early in April, at the call of Governor Sanders. All the Southern States, except Alabama and Texas, were represented by public officials, manufacturers, labor leaders and child welfare reformers. The report of the resolutions committee, signed by all members, except Jas. W. Van Cleave, president of the National Manufacturers' Association and two other manufacturers, was adopted. It favored the following propositions: That the minimum age of employment be 14 years for all children and 16 years for those who cannot read and write, except in agriculture and domestic service; that no child under 16 be employed in or about mines or quarries or in dangerous trades; that night work be prohibited for boys under 16 and girls under 18; that a 54-hour week is highly desirable; that the registration of births be required, as a step toward efficient enforcement of child labor laws in the future; and that adequate State inspection be provided for. These resolutions set a standard as high as the existing legislation in all but one or two States. Before adjournment a permanent organization was effected, and Memphis, Tennessee, was mentioned as the probable place of meeting in 1910.

An important legal opinion affecting child labor was rendered early in the fall by the Supreme Court of West Virginia. A boy just under fourteen years of age had brought suit for \$8000 damages for the loss of a leg while employed in a coal mine. As the law of that State allows boys of twelve years to be so employed, the decision turned, not on any violation of law, but upon whether a boy of that age has sufficient discretion and experience to comprehend the dangers attending his employment.

The court held that the employer was in this case wholly responsible because he had employed a child at too dangerous a position, had not sufficiently instructed and cautioned him, and had not taken proper precautions to prevent accident. The court did not deem the damages excessive for so severe and permanent an injury.

LEGISLATION. New laws were enacted in 1907 in North Carolina, South Carolina, Florida, Tennessee, Arkansas, and Alabama, and in 1908 in Kentucky, Louisiana, Mississippi and Virginia. Special efforts were made in 1909 to secure better child labor laws in North and South Carolina. In North Carolina the fight was continued during the entire legislative session, the reformers being pitted against a powerful manufacturers' lobby. The purely farcical law requiring manufacturers to report once every six months that the provisions of the child labor law "have been faithfully complied with," was the only enactment secured. A bill limiting work to 64 hours per week for women and children, raising the age limit and restricting night work, passed the House but was defeated in the Senate. The fight in this State was based largely on studies made under the direction of the National Child Labor Committee at Charlotte, in and about which almost one-half of Southern spindles are located. It was found that many children from 7 or 8 years up were working in 12-hour night shifts with no time off for eating. In South Carolina, where any child of 12 years or over and any orphan of any age may work in mills, the only change in the hours of labor was retrogressive. The 60-hour week was retained, but the day limit was raised from 10 to 11 hours. Provision was made for two factory inspectors. Investigation has shown that in South Carolina mill towns the school attendance is practically limited to children under 12 years of age, the average attendance being only about one-fifth that of the State (including negroes).

The Wisconsin Legislature passed a law applying to Milwaukee prohibiting boys under ten and girls under sixteen from selling newspapers or magazines on the street, and prohibiting boys under twelve and girls under sixteen from employment in street trades, in distributing handbills or in offering merchandise for sale. Boys under fourteen can be so employed only during hours when schools are not in session; they must pass through various educational, physical and mental tests, and must wear badges conspicuously displayed. At the same time the Wisconsin Legislature forbade the employment of children in any but legally specified trades; prescribed full and rigorous methods of securing a school permit; restricted the employment of children in theatrical and other public exhibitions; and struck out those provisions of the 1907 law permitting the employment of children at night to save perishable goods or in outdoor work at any time and age.

The Pennsylvania Legislature greatly improved its child labor laws, largely as a result of the action of the Governor in making this an administration policy. The new law prescribes an average ten-hour day and a fifty-eight hour week; provides an efficient regulation and safe-guarding of the granting of age and school certificates; and strikes out the old exception permitting the employment of under-age children because their parents are poor. While the old exemption for the glass industry was retained by a margin of only two votes in the

Senate, the provisions of the new law were extended to the breaker-boys employed in the coal industry.

In New York new laws were passed specifying a list of dangerous occupations for children under sixteen; and strengthening the Commissioner of Labor in the enforcement of the law. Iowa provided the standard proofs of age. Delaware forbade night work for children under sixteen, except in the canning industry and basket factories; limited hours to a nine-hour day and a 54-hour week; increased the powers of factory inspectors; and provided tests of physical and educational fitness. Michigan extended the prohibition of night work to girls under eighteen; prescribed a 54-hour week for all women and for males under eighteen; and provided more rigid proof of age and ability to read and write English. Kansas, Oklahoma and North Dakota prescribed an eight-hour day and a 48-hour week for boys under sixteen and girls under eighteen; and Rhode Island a 10-hour day and a 56-hour week for all persons under sixteen and for all women. The new law in North Dakota also prohibits night work and employment in dangerous trades and requires standard proofs of age.

GREAT BRITAIN. A monograph prepared by Victor S. Clark on *Women and Child Wage-Earners in Great Britain*, published by the United States Bureau of Labor, reports a very high standard of protection for child workers and mothers, with consequent advantages to home and school life, to earnings, and to physical and moral well-being. In September was published the report of the English Departmental Committee on Partial School Attendance. It dealt with the "half-time" system, a plan whereby boys and girls of ages 12 to 14, who have secured labor certificates, are permitted to work in mills and factories one-half of each week day on condition of attending school the other half. In 1909 there were 34,306 such children, of whom 20,302 were in the cotton mills of the Lancashire district. This is a long-continued system of exploiting the children of the poor, which employers find profitable and to which parental ideas and social habits have become adjusted. Its connection with physical and moral deficiency have been repeatedly pointed out. In December the London County Council educational committee drew up a new set of regulations for children engaged in street trades, prohibiting such employment for boys under 14 and girls under 16, for boys of ages 14 to 16 not excused from school attendance, and between the hours of 9 P. M. and 6 A. M. for boys of ages 14 to 16 who are excused from school attendance. For child labor developments in Germany see **WOMEN IN INDUSTRY**.

CHILD LABOR COMMITTEE, NATIONAL. See **CHILD LABOR**.

CHILDREN'S COURTS. See **PENOLOGY**.

CHILE, OR CHILL. A South American republic extending between the Andes and the Pacific from Peru (the Samu River, 17° 57' S. lat.) to Cape Horn. The capital is Santiago.

AREA, POPULATION, ETC. The estimated area of the 23 provinces and one territory constituting the republic is 292,419 square miles, and the estimated population over 3,870,000. The most densely inhabited provinces are, in the order given: Valparaiso (138.5 to the square mile in 1905), Santiago, Concepción, Nuble, and Colchagua. The principal cities, with population

in 1907, are: Santiago, 378,711 (probably 400,000 in 1909); Valparaiso (the chief port on the western coast of the Continent), 197,560; Concepción, 60,676; Iquique, 44,500; Talca, 44,271; Chillan, 33,000; Antofagasta, 32,219. Immigration has been small, but under the encouragement of the government rose from 1442 in 1906 to 8810 in 1907. See **EXPLORATION**.

Primary instruction is free, but not compulsory. About 70 per cent. of the adult males, and probably a larger proportion of the females, are illiterate. In 1906 there were 2265 public primary schools, with 160,736 pupils, an average attendance of 101,360, and 4520 teachers. These schools were maintained during the year at a cost of 6,491,454 pesos. The private primary schools numbered 375, with 38,120 pupils. In 1908 there were 15 industrial schools, with 3300 pupils. There are schools and colleges, both public and private, for secondary, higher, technical, and professional education. The state religion is Roman Catholicism, but religious toleration prevails by law.

AGRICULTURE. Of the total area about one-fifth, or 37,065,000 acres, is cultivable land. Large quantities of cereals, besides excellent wine, fruit, and vegetables, are produced annually. Recent estimates place the number of farms at about 50,000, with an assessed valuation of \$365,000,000. In 1908 the wheat yield amounted to about 25,000,000 bushels, and barley 5,500,000 bushels. The wine production of 1908 was about 52,800,000 gallons. Flax cultivation is encouraged by the government. The raising of live-stock is of considerable importance, the development in recent years of sheep raising in the Territory of Magellan being especially notable. Dairy farms and the production of butter and cheese are increasing. See **IRRIGATION**.

MINING, ETC. Chile owes its material prosperity chiefly to its large mineral resources. The leading mineral products are sodium nitrate, copper, coal, iodine, calcium borate, gold, and silver. The most important of these commercially is nitrate, of which the officially estimated supply still in sight (in Antofagasta and Tarapacá) is over 4,800,000,000 quintals (1 quintal = 101.61 pounds). On account of a disagreement among the nitrate producers, the combination for the control of its production and exportation ceased to exist on March 31, 1909. In 1908 the output of nitrate was 42,847,267 quintals, and of copper, about 35,000 tons of refined metal. The annual production of coal is about 900,000 tons; of borate, about 28,000 tons.

The leading manufacturing establishments are those concerned with the treatment of ores and other minerals, but other factories of various kinds are developing. During 1909 the first steel plant south of Mexico was under construction at Corral. It was expected that this plant, backed by French capital and to cost \$2,000,000, would be ready for operation early in 1910, having a daily capacity of 200 tons.

FOREIGN COMMERCE. The total values of imports and exports in pesos (36.5 cents) have been as follows:

	1906	1907	1908
Imports.....	237,697,642	293,681,855	267,264,169
Exports.....	289,621,397	280,080,730	314,274,093

In 1908 the leading classes of imports were valued as follows: Textiles, 55,828,127 pesos

(nearly half from Great Britain); machinery and mechanical appliances, 53,433,831 (nearly half from Germany); mineral products (exclusive of coal), 46,902,528; fuels (including coal) and oils, 46,850,020; vegetable substances, 46,902,528; animal substances, 18,502,084; paper, cardboard, and their manufactures, 7,961,442; spirits and other beverages, 5,071,394; pharmaceutical and chemical products, 5,433,357. The principal imports showing a decrease, as compared with 1907, were: Textiles, 12,579,543 pesos decrease; mineral products, 11,680,388; vegetable products, 8,656,263; animal products, 2,351,975. Imports showing an increase over 1907 were petroleum, coal, machinery, and paper and paper products. Oils and fuel increased by 5,588,441 pesos, and machinery and mechanical appliances by 5,239,527 pesos.

Export values in 1908 were: Mineral products, 271,459,104 pesos (an increase over 1907 of 29,428,860 pesos); vegetable products, 24,484,189 pesos (an increase of 11,171,755 pesos); animal products, 16,689,180. Of the mineral products the most important were: Sodium nitrate, 44,576,177 quintals, valued at 233,838,000 pesos, (206,202,950 in 1907); copper bullion and bars, 29,539,235 kilos, 17,560,000 pesos; copper ore, 64,084,579 kilos, 7,037,200 pesos; calcium borate, 31,740,650 kilos, 4,443,690 pesos; iodine, 330,090 kilos, 3,928,069 pesos; gold and silver ores, 1,162,913 kilos, 2,532,611 pesos. Great Britain received mineral products valued at 124,340,442 pesos; Germany, 59,530,514; the United States, 43,448,189; and France, 17,107,059.

Imports from countries commercially the most important were valued in pesos as follows in 1907 and 1908:

Countries	1907	1908	
		Value	Per cent.
Great Britain.....	113,502,732	83,920,023	31.40
Germany	74,310,374	75,763,197	28.35
United States	31,124,384	24,385,123	9.12
Australia	7,397,112	17,168,811	6.42
Belgium	10,197,301	12,757,365	4.77
France	16,093,564	11,945,367	4.47
Argentina	10,015,251	10,535,007	3.94
Peru	8,795,298	10,213,863	3.82

Exports to the principal countries were valued in pesos:

Countries	1907	1908	
		Value	Per cent.
Great Britain.....	139,666,884	149,355,719	47.52
Germany	55,819,019	67,595,074	21.50
United States	24,843,462	44,063,669	14.02
France	16,224,086	19,114,971	6.08
Belgium	3,724,218	8,657,584	2.75
Netherlands	11,562,645	7,140,566	2.27
Portugal	9,735,775	3,438,136	1.09
Peru	2,820,653	3,431,874	1.09

In the first six months of 1909 there was a decline in both imports and exports, the total trade being about 16 per cent. less than during the corresponding period of 1908.

COMMUNICATIONS. For 1907 the length of Chilean railways was reported at 3289 miles, of which the government owned and operated 1543 miles and private companies 1746 miles. In 1908, 648 miles of government railway were constructed. In 1909 the government had under actual construction 16 lines (or parts of lines), aggregating 619 miles, to cost when

completed upwards of \$25,000,000. Chile's great railway undertaking is the Longitudinal Railway, to extend from Arica south to Puerto Montt, a distance of 2138 miles. Over half of this line is in operation, and construction on the remainder is progressing as rapidly as possible. Also under construction of the Chilean government is one line from Arica to La Paz, Bolivia (337 miles, 186 miles in Bolivian territory). According to a contract awarded on May 1, 1909, to a British firm for the completion of this line, the Chilean section is to be finished within 30 months from that date at a cost of £1,645,000 and the Bolivian section within three years at a cost of £1,105,000. It was expected in 1909 that the Transandine Railway (888 miles from Valparaiso to Buenos Ayres, Argentina), including the Transandine tunnel (which was completed on November 27), would be open to traffic over its entire length before the middle of 1910. There are over 12,000 miles of telegraph lines.

FINANCE. Revenue is derived mainly from export duties on nitrate, import duties, and the railways. For 1908 the estimated revenue was 224,000,000 pesos paper (the paper peso is worth about 20 cents), and the estimated expenditure was 65,230,892 pesos gold (36.5 cents each) and 157,715,666 pesos paper. Export duties in 1908 amounted to 6,888,431 pesos gold and 6,079,581 pesos paper; import duties, 19,859 pesos gold and 5,895,404 pesos paper. For 1909 the estimated expenditure was 73,171,889 pesos gold, and 175,084,404 pesos paper; the largest items were for the following departments: Industry and public works, 29,256,786 pesos gold and 46,937,293 pesos paper; treasury, 19,187,970 gold and 16,801,933 paper; navy, 14,845,224 gold and 14,905,391 paper; interior, 5,994,667 gold and 34,281,952 paper; war, 1,677,134 gold and 26,113,586 paper; public instruction, 342,446 gold and 24,508,169 paper. On June 1, 1909, the external debt stood at \$101,900,000. The government is accumulating gold for the purpose of gradually exchanging the paper currency for new legal tender at full value. There is no state bank. On December 31, 1907, the 24 joint-stock banks of issue had assets amounting to 811,363,263 pesos.

NAVY. In 1909 the effective navy included 3 armored battleships, aggregating 19,000 tons; 1 armored cruiser, of 7000 tons; 4 protected cruisers, aggregating 14,500 tons; 4 torpedo gunboats, aggregating 1470 tons; 7 torpedo-boat destroyers, 2270 tons; 5 first-class torpedo boats, 728 tons. There were also 1 monitor, of 1822 tons; 1 school ship of 2330 tons; 4 transports and 6 vedettes. The government's naval programme as announced in October included one 20,000 ton battleship, two destroyers, and several submarines, and involved an expenditure of about \$20,000,000.

ARMY. All able-bodied citizens are liable to service in the army, which consists of an organized or active army in four divisions distributed territorially for mobilization, and each comprising the three arms of the service. In 1909 there were 16 regiments of infantry, 6 regiments of cavalry, 1 section of machine guns, 3 regiments of field artillery (each with 3 batteries and 1 battery of horse artillery), 2 regiments of mountain artillery each of 4 batteries, 1 battalion of railway troops, 4 companies of sappers and miners, and 4 companies of train. On the active list in 1909 there were 4 major-

generals, 8 brigadier-generals, 20 colonels, 40 lieutenant colonels, 80 majors, 200 captains, 250 lieutenants, and 98 sub-lieutenants. The skeleton organization maintained comprised 6600 men and the annual contingent of recruits was 6882 men. So that a field army of about 50,000 could be put out on mobilization. In the reserves there were 900 lieutenants and recruits who received military training annually. The war strength was estimated at 150,000, which included a part of the national guard, while with others who have received but little training this could be raised possibly to 350,000.

GOVERNMENT. The executive authority is vested in a president, who is elected by indirect vote for a term of five years and is assisted by a responsible council of state and a responsible ministry. The President in 1909 was Pedro Montt, who assumed office September 18, 1906. The legislative power devolves upon a congress of two houses, the Senate (32 members, elected for six years) and the Chamber of Deputies (94 members, elected for three years). The provinces are administered by intendentes, appointed by the President.

HISTORY. The chancellor of the German legation at Santiago was tried for a sensational crime. The building of the legation had been burned, all the archives stolen, and the body of the porter found in the ruins. The chancellor was tried for murder, falsification of accounts and on other charges, and early in September was found guilty and sentenced to death.

In April it was announced that the Arica-La Paz Railway contract was awarded to a British company, £3,000,000 being voted. In August the government resigned, owing to the President's opposition to the bill deferring the operation of the Metallic Conversion Law, which had passed both houses.

The dispute with Peru as to the possession of Tacna and Arica still continued. It was decided in 1908 that the question should be settled by plebiscite, but there was a difference between the two countries as to who should have the right to vote, the Peruvian government contending that the plebiscite should be rendered only by the native inhabitants of the two provinces, and the Chilean government insisting that the Chilean colonists in the provinces should also have the right to vote. Tacna and Arica were conquered by Chile and have been held since October 20, 1883. The greater part of the natives were Peruvians and the greater part of the newcomers were Chileans, hence the settlement of the matter was difficult. See PERU.

The completion of the Transandine tunnels was celebrated on November 27. The main tunnel of the Transandine Railway, connecting the capitals of Argentine and Chile, is five miles long, and has a greater altitude than any other tunnel at the present time. In the latter part of the year the Alsop claim was referred to the arbitration of King Edward of Great Britain. This dispute dated back nearly forty years, in the course of which there had been repeated negotiations. It arose from the claims of certain American citizens engaged in business with the governments of Chile, Peru and Bolivia. After the war of 1881 between these three countries, the territory in which the claims occurred passed into the possession of Chile, and a formal demand on the Chilean

government was made for settlement. See **ARBITRATION, INTERNATIONAL.**

CHINESE EMPIRE. A monarchy of eastern Asia, extending from Siberia on the north to French Indo-China and British India on the south. The capital is Peking.

AREA AND POPULATION. The area in square miles, and the population of the empire, are stated as follows (the first column for population is according to the Chinese estimate of 1902; the second, according to other estimates accepted by many as more nearly approximating accuracy):

	Area	Population	Population
China proper.....	1,532,420	407,253,030	320,500,000
Manchuria	360,610	16,000,000	5,530,000
Mongolia	1,367,600	2,600,000	1,850,000
Tibet	463,200	6,500,000	2,250,000
Chinese Turkestan, etc.	550,340	1,200,000	.....
Total	4,274,170	433,553,030	330,130,000

In 1904 the American Minister at Peking, after careful inquiry, estimated the population of China proper (the eighteen provinces) at less than 270,000,000; in 1906 the Chinese Imperial Customs estimated the total population at 438,214,000. So much doubt exists as to the actual number of people in the empire that in 1909 the government decided to take a new census, the complete returns of which will probably not be available before 1912. According to the results of Chinese official investigation, the number of Chinese in foreign countries is 6,800,000, mostly in Siam, Java, Malaysia, and neighboring countries. In 1908 the number of foreigners living in the treaty ports was 77,960, including 44,143 Japanese, 9520 Russians, 9043 British, 3637 Germans, 3545 Americans, 3353 Portuguese, and 2029 French. Native adherents of religions properly foreign to China include about 30,000,000 Mohammedans, 1,000,000 Roman Catholics, and 150,000 Protestants. The population of Peking is estimated at from 500,000 to 1,650,000; a census taken in 1908 gives 128,008 families, according to which, on the basis of 5.5 to a family, the inhabitants would number 704,044. The population of other cities is likewise very uncertain. Figures given for the native population of the larger treaty ports are as follows: Canton, 900,000; Hankow, 820,000; Tientsin, 800,000; Shanghai, 651,000; Foochow, 654,000; Chungking, 610,000; Soochow, 500,000; Hangchow, 350,000; Nanking, 267,000; Changsha, 230,000; Chinkiang, 182,000; Wuhu, 128,000; Amoy, 114,000; Chefoo, 100,000.

EDUCATION. There are now three classes of schools in China—the old-style schools, the mission schools, and the institutions which are being established by the government pursuant to the Imperial decree of September 3, 1905. The number of the old-style schools, which are private institutions, is beyond computation, practically every village and hamlet having one or more. Their curriculum is practically confined to the Chinese classics, examination in which, for state employment, was abolished by the above-mentioned decree. Nevertheless, it will probably be a long time before a large number of the old-time schools are superseded by modern institutions. The various missions have opened schools in all the Chinese provinces,

from primary to collegiate rank. In 1907 the reported number of mission primary schools was 2196, with 42,546 pupils, and of mission intermediate schools, high schools, and colleges, 389, with 15,137 pupils. The decree of September 3, 1905, provides for the establishment of an elaborate system of education, modeled on that of Japan. Schools of all grades, with Western curricula, are to be established in every province. Already schools and colleges have been opened in many places in substantial buildings of Western style of architecture. In 1909 the greatest difficulty encountered by the government in carrying out the new plan was the lack of properly qualified teachers. The Imperial University at Peking is a government institution, where Western science and languages are taught by European and Japanese professors, and Chinese subjects by Chinese. A medical college was established at Peking in 1906. At Tientsin there are a Chinese university, an Anglo-Chinese college, an industrial school, and medical schools. Canton has a college of foreign languages, an agricultural school, a law school, etc. Nanking has a military and naval college, government middle schools, and a normal school. In recent years the government has undertaken to reorganize military instruction, and it has established schools in connection with various arsenals.

INDUSTRIES. Agriculture is the leading industry. In the north the principal crops are wheat, barley, corn, millet, and other cereals, and beans and peas; in the south, rice, sugar, indigo, and cotton. Tea and silk cocoons are important products, the former being produced in the west and south, and the latter in every province. Large amounts of opium have been produced, but, pursuant to government decree, the output is being greatly restricted. The rainfall is uncertain, and almost every year various parts of the country suffer from flood or drought. In the midsummer of 1909 the drought was so severe in Shantung that the Governor prohibited the export of grain, and a few weeks later most of China north of the Yangtse suffered from flood, enormous damage being done to the crops. The production of tea (especially black leaf), which suffered in competition with the teas of Ceylon and India, has increased in recent years. The culture of silk, though not at present in a prosperous condition, is more important than that of tea; about 27 per cent. of the world's supply of raw silk comes from China (28 per cent. from Japan and 25 per cent. from Italy).

China is rich in mineral resources, but their exploitation is comparatively insignificant. The minerals which are worked to a greater or less degree include coal, iron, antimony, lead, tin, zinc, salt, and copper. At present the most important mineral exploitation is that of coal, which is widely distributed and is especially abundant and valuable in Chili and Shansi. The coal output in 1906 was estimated at 9,032,660 tons. Next in importance are tin and iron; the export value of the former in 1906 was £530,891.

Manufacturing, in the Western sense, has not reached a high state of development, but the modern textile industry is constantly developing in various parts of the country. Cheap cotton cloths are manufactured in considerable quantity, the number of spindles in operation in 1909 being about 750,000. Other manufac-

tures include iron and steel, thread, yarn, knit goods, flour, and cement.

FOREIGN COMMERCE. Imports and exports (special trade) have been valued as follows, in Haikwan taels (the Haikwan tael was worth 65.5 cents on July 1, 1908, and 63.4 cents on July 1, 1909):

	1906	1907	1908
Imports.....	410,270,082	416,401,369	394,505,478
Exports.....	236,456,739	264,380,697	276,660,408

The principal articles of imports in 1907 and 1908 respectively, were valued as follows, in Haikwan taels:

Articles of Import	1907	1908
Cotton goods	118,915,923	110,898,000
Opium	28,653,653	34,226,000
Kerosene	20,203,177	27,326,000
Rice	34,417,307	26,579,000
Sugar	26,358,849	19,801,000
Railway materials, etc. ....	.....	12,894,000
Coal and coke	7,668,599	8,436,000
Fish, etc.	8,352,907	7,712,000
Dyes and color .....	.....	7,072,000
Iron .....	.....	6,977,000
Flour .....	.....	6,931,000
Tobacco .....	.....	6,930,000
Machinery .....	.....	6,846,000
Wood .....	.....	6,429,000
Copper .....	.....	6,338,000
Matches .....	.....	5,153,000
Woolen goods	6,898,806	4,340,000
Tin .....	.....	4,268,000

The leading exports in 1907 and 1908 respectively were valued as follows, in Haikwan taels:

Articles of export	1907	1908
Silk, raw and manufactured.	83,084,034	85,709,000
Tea	31,736,011	32,891,000
Beans and bean-cake	12,389,817	23,562,800
Hides and skins	11,116,792	12,074,000
Cotton, raw	17,117,873	10,516,000
Sesame .....	.....	9,138,000
Straw braid, etc.	6,819,092	7,518,000
Oil .....	.....	5,481,000
Wool .....	.....	4,490,000
Tin .....	.....	4,483,000
Cattle .....	.....	4,225,000
Straw mat, etc. ....	.....	3,580,000
Paper	3,376,964	3,439,000

Imports (including re-exports) by countries in 1907 and 1908 respectively were valued as follows, in Haikwan taels:

Countries	1907	1908
Hongkong	155,642,016	150,252,000
Great Britain	77,562,700	72,561,000
Japan	57,461,410	52,501,000
United States	36,903,476	41,246,000
British India	32,913,847	30,499,000
Germany	16,177,400	14,039,000
Russia	913,351	8,652,000
Belgium	10,581,048	8,450,000
Macao .....	.....	5,822,000
Straits Settlements and Singapore	5,347,638	5,418,000
France	3,158,626	2,403,000
Korea .....	.....	1,320,000
British America	1,130,374	1,203,000
Italy .....	.....	509,000
Other countries	30,371,244	14,680,000
Total	429,071,662	409,555,000
Re-exports	12,670,293	15,050,000
Net total	416,401,369	394,505,000

Domestic exports by countries in 1907 and 1908 respectively were valued as follows, in Haikwan taels:

Countries	1907	1908
Hongkong	97,226,434	92,108,000
Japan	39,347,476	37,120,000
France	30,658,585	32,129,000
Russia	17,201,208	29,559,000
United States	26,597,660	23,824,000
Great Britain	12,107,645	12,555,000
Italy .....	.....	9,849,000
Germany	6,109,195	7,094,000
Macao .....	.....	4,418,000
Belgium	3,978,652	4,388,000
British India	3,179,695	4,090,000
Straits Settlements and Singapore	4,059,515	3,786,000
Korea .....	.....	2,595,000
British America	701,466	1,148,000
Other countries	22,958,119	11,996,000
Total	264,380,697	276,660,000

The trade of Hongkong and Macao, listed in the foregoing tables, is chiefly transit.

The value of China's leading import—cotton goods—have fallen off in the last few years. The importation of the principal makes of plain cottons—British, American, Japanese, and Indian—has been as follows:

	1905 Pieces	1906 Pieces	1907 Pieces	1908 Pieces
British...	13,548,000	10,785,000	8,224,000	8,993,000
American	12,566,000	8,544,000	578,000	1,537,000
Japanese	780,000	733,000	840,000	986,000
Indian...	650,000	85,000	67,000	141,000

Import values of cotton goods in 1907 and 1908 were as follows (reductions from Haikwan taels to American currency were made at the rate of 79 cents for the 1907 figures and 65 cents for the 1908 figures):

Year	Total Imports	Re-exports	Net Imports
1907.....	\$99,092,524	\$5,148,884	\$93,943,640
1908.....	75,836,212	3,752,512	72,083,700
Decrease....	\$23,256,312	\$1,396,372	\$21,859,940

The following table shows the principal cotton manufactures imported in 1907 and 1908:

	1907	1908
Yarn	\$45,396,955	\$29,442,400
Shirtings of all kinds	17,721,944	17,935,190
Lastings	15,944,018	10,249,200
Drills, etc.	2,150,351	2,512,250
Sheetings	2,895,259	2,231,450
Jeans	1,156,386	2,005,900
T-Cloth	1,623,690	1,424,510
Flannel	1,042,351	1,238,250
Chintzes, etc.	1,332,890	576,550
Thread	608,094	569,400
Towels	624,990	377,000
Cambrics, lawns, etc.	208,489	168,090
Handkerchiefs	192,270	133,705
Blankets	244,804	97,745
All other	2,801,155	3,124,060
Total	\$93,943,640	\$72,083,700

The unprecedented fall in the values of American cotton goods imports in 1907, as compared with 1905 and 1906, found slight compensation in the increased importations of 1908. American trade with China is suffering from

the very active competition of the English and Germans.

SHIPPING. In 1907 the number of vessels, both steam and sail, which entered and which cleared at the treaty ports was 217,932, aggregating 80,109,424 tons; in 1908, 207,605 vessels, aggregating 83,991,289 tons. Of the latter, steamers numbered 86,600, of 77,955,525 tons, and sailing vessels, 121,005, of 6,035,764 tons. Chinese junks comprised the greater part of the sailing vessels. By principal nationalities the shipping entered and cleared in 1908 was:

	Vessels	Tons
British	28,445	34,405,761
Japanese	30,708	18,055,138
German	5,496	6,585,671
French	3,901	5,071,689
Other foreign	2,392	2,927,170
Total foreign	70,942	67,045,429
Chinese	136,663	16,945,860
Total	207,605	83,991,289

The Chinese merchant marine, as reported in 1909, consists of 43 steamers of 41,647 tons, and 3 sailing vessels of 901 tons.

COMMUNICATIONS. Chinese roads are numerous, but generally in a poor state of repair. More important commercially are the rivers and canals, by means of which native junks carry on an enormous amount of traffic. At river ports in 1907 there were registered 864 steamers for inland water traffic; of these, 609 were under the Chinese flag, and 255 were foreign.

At the end of 1909 about 4700 miles of railway, including the Manchurian lines, were open to traffic; many miles were under construction, and projected. The lines in operation in 1909 were as follows: Chinese Eastern Railway Company (Manchurian Railways): (a) Manchurian frontier via Harbin to Dairen and Port Arthur, 1180 miles, with 157 miles of branch lines (Russian and Japanese); (b) Harbin to Pogranichnaia, on the East Manchurian frontier, 462 miles (Russian). Imperial Railways of North China (British engineers; mortgaged in part to British bondholders): (a) Peking to Mukden, 572 miles; branch from Peking to Tungchow, 12 miles; (b) (Chinese) Peking to Kalgan, 137 miles (opened October 2, 1909); (c) Peking to Hankow (Peihau Railway), 754 miles, with branches from Chingchow to Kaifeng-fu, 35 miles, Kaifeng-fu to Honan-fu, (Belgian capital and engineers), 120 miles, Chengting-fu to Taiyuan-fu (Russo-Chinese Bank), 170 miles; (d) Chinchou-fu to the Nan'piao coal mines, 30 miles; (e) Kaop-tien (on the Peihan line) to Hsiling Western Tombs, 30 miles. Imperial Shantung Railway Company (Tsingtao-Chinan-fu Railway; German capital and engineers); Tsingtao to Chinan-fu, 247 miles with a branch to Poshan, 30 miles. Peking Syndicate Railway (British capital and engineers); Taok'on (Honan) to Ching-hau (Shansi), 90 miles, crossing the Peihan line. Shanghai to Nanking, 192 miles; Shanghai to Wusung, 12 miles. Canton-Samshui Railway, 30 miles. Pingriang to the Siang River (Chinese) 56 miles. Swatow to Chaochou-fu (Chinese), 32 miles. Peking to Mantokow, 17 miles Sunning Railway, 40 miles.

The following lines were under construction in 1909: Canton to Wuchang (Hankow), 620 miles; about 65 miles open (Chinese). Canton to Kowloon, 102 miles, to be open by May, 1910 (British). Tientsin to Pukow (Nanking), upwards of 600 miles, begun January 3, 1909 (Anglo-German). Shanghai to Ningpo, 238 miles; about 109 miles completed (Chinese capital and engineers). Extensions of the Sunning Railway to Kong Moon, 26 miles, and to Samkahoi, 59 miles. Amoy to Changchow, 30 miles. Wuhu to Kwangchow, 90 miles. Shanghai to Kashing, Hangchow to Shanghai, Nanchang to Kiukiang-Laokai on the frontier of French Indo-China, to Yunnan-fu, about 296 miles; will probably be completed early in 1910 (French).

The telegraph is being rapidly extended throughout the empire. Telegraphic communication exists between all of the principal cities and with all of the neighboring countries. The total length of line in 1907 was 25,913 miles, and of wire, 39,196 miles. In the last half dozen years the Chinese postal system has shown unprecedented expansion; in 1908 there were 3493 post-offices, and the postal routes covered 88,000 miles. In 1907 the number of postal articles handled was about 167,000,000, exclusive of 1,917,000 parcels; in 1908, 260,042,000 postal articles, exclusive of 2,455,000 parcels.

FINANCE. No comprehensive statements of revenue and expenditure are officially published. The revenue, except the foreign maritime and a few native customs, is collected by provincial agents, and doubtless a large part of the levies remains with the collectors. An unofficial estimate, in 1901, placed the revenue and expenditure at 88,200,000 and 101,120,000 Haikwan taels respectively. An estimate in 1908 placed the revenue at 105,000,000 Haikwan taels. Receipts from maritime customs in 1907 amounted to 33,861,346 Haikwan taels (customs, 29,490,469; opium likin, 4,370,877); in 1908, 32,901,895 Haikwan taels (import duties, 18,134,509; export duties, 10,988,485; coasting trade, 1,856,605; tonnage, 1,264,915; transit, 1,790,956; opium likin, 3,871,422). Of the maritime customs receipts in the latter year, 26,309,014 Haikwan taels were derived from foreign commerce, 6,592,681 from internal. The public debt on March 2, 1908, stood as follows: £38,839,600 (\$189,012,913); 499,978,000 francs (\$96,495,754); 452,653,000 Haikwan taels (\$294,224,450); total, \$579,733,017.

MONEY. The only official coinage of China has been the copper cash, of which about 1220 are equivalent to the Haikwan tael. The latter is the unit used by the maritime customs and fluctuates in value with the price of silver, being worth 65.5 cents on July 1, 1908, 60.9 cents on January 1, 1909, and 63.4 cents on July 1, 1909. Recently the provincial mints have issued enormous numbers of a coin known as the "hundredth of a dollar"; it is rapidly displacing the old copper cash and is current at a little more than its intrinsic value, about .24 of a cent, though its face value is about .6 of a cent. A silver dollar, equivalent to the Mexican dollar (which for many years was current at the coast and river ports and their vicinity), is current in all the provinces, and its circulation is extending. An Imperial decree of October 5, 1908 commanded the introduction of a uniform national currency, of which the unit



Photograph by Underwood & Underwood, New York

THE ROYAL FAMILY OF CHINA

The Emperor of China, little Pu-Yi, stands by the knee of his father, the Regent. The younger brother of the Emperor is being held by the Regent

should be a silver tael coin, of 98 fineness, weighing one k'up'ing, or treasury-scale tael or ounce; its weight was fixed at 575.82 grains (Haikwan tael 581.47 grains).

NAVY. In 1909 the navy consisted of 2 second-class cruisers (4300 tons), 11 third-class cruisers (875 2500 tons), 3 torpedo-gunboats (349-1000 tons), 4 gunboats (215-411 tons), 32 first-class torpedo-boats, and 12 second-class torpedo-boats. Most of these vessels were launched between 1885 and 1902 and many are now unfit for action. The government has in contemplation the creation of an effective modern navy; an Imperial edict of February 19, 1909, ordered the formation of a naval board to devise plans.

ARMY. The reorganization of the Chinese national army proceeded during 1909 in accordance with the general provisions of the law of 1905. By an edict of July 15, 1909, the Emperor assumed supreme command of the army and navy, which was placed under the direction of the Prince Regent, and a military council or general staff of the army was formed. The Chinese army is formed, for the most part, by voluntary enlistment of selected recruits, the time to serve being three years in the active army, three years in the reserve, and four years in the landwehr. The organization, which was to be completed in 1912, would consist of 37 divisions, aggregating 28,000 officers and 430,000 men (380,000 combatants). Each division includes all branches of troops and numbers on a peace basis some 11,000 or 12,000 men, 2000 horses and mules, and 54 guns. In time of war this number can be increased to 17,000, the quota of infantry being doubled from the reserve. In 1909 it was reported that 13 of these divisions had been organized, and had a total strength of 6000 officers and 190,000 men. Each division consists of two brigades of infantry (each of two regiments of three battalions of four companies), 1 regiment of cavalry of 3 squadrons, 1 regiment of artillery divided into 3 sections of 3 6-gun batteries, 1 battalion of engineers, and 1 battalion of train. The training of the new army was being directed by Japanese officers, and each year a number of men were sent to Japan for instruction. Military schools for officers are maintained in the different provinces, and in addition to these cadet schools, four secondary military schools were founded in 1909 at Peking, Woutchang, Nanking, and Hsi-ngan-fou. These schools were turning out well-trained officers and foreign military observers noted considerable improvement, especially in the divisions or brigades quartered near the capitals.

GOVERNMENT. China's form of government has been regarded as that of an absolute monarchy. In practice, however, the sovereign's power is limited or modified by advisory bodies, as the Grand Council and the Government Council, and by the powerful provincial viceroys. A radical departure from absolutism was the Imperial edict of August 27, 1908, which promised a constitution and parliamentary government in 1917. The Emperor encouraged deliberative provincial assemblies for their educative value, and the meeting of these assemblies in October, 1909, was the beginning of what promised to be constitutional government in China. On August 14, 1908, the Emperor Kwang-Hsu died and his death was followed by that of the Dowager Empress. The Emperor in 1909 was

Pu-Yi, who was born in 1906, and succeeded Kwang-Hsu in November, 1908. The Regent was Prince Chun, the Emperor's father.

HISTORY

OPIUM QUESTION. The International Opium Commission assembled at Shanghai on February 1. Its president was Viceroy Tuan-Fang, who declared that the area under poppy cultivation had been already much reduced and that consumption had been cut down one-half. The Commission later chose as its president Bishop Brent, an American. On February 19 the Commission adjourned. Among the important decisions were the following: That each national delegation was to recommend to its government an inquiry into the means of curing the opium habit without recourse to other drugs and into the general medical aspects of the opium question; that the Chinese government was sincere in its policy of suppression and had made progress; that each country should control the trade in morphine, etc., and prevent its shipment to the countries excluding opium; should endeavor to suppress opium smuggling, and should gradually suppress opium-smoking in its own domains and close opium dens in its own settlements, and in the Chinese concessions. The report of the Commission was published in August. Owing to the absence of trustworthy figures, the actual poppy acreage could not be ascertained. The statistics called for by the Chinese Imperial Decree of 1907 had not been supplied. The Chinese delegates promised to bring this matter to the attention of their government.

DISPUTE WITH JAPAN. Several questions were pending between China and Japan in the beginning of the year and threatened to embroil the two governments. Negotiations in regard to them took place from time to time after December 27, 1908. The chief questions concerned the Fa-Ku-Men Railway and Japan's proposed reconstruction of the Antung-Mukden line. According to the Portsmouth agreement Japan was not to hinder in any way the Chinese development of Manchuria. China, which had planned the railway from Fa-Ku-Men, had awarded the construction contract to a British firm (November 8, 1907). The line was to run to Hsin-min-tun. Japan objected to it as a competitive line and likely to injure the Japanese South Manchurian Railway. On the other hand, it was denied in China that the line could be regarded as a competitor. This view was also expressed on November 18, 1908, by the Manchurian Commissioner of Customs, an Englishman. As to the Antung-Mukden line, which Japan had used during the war with Russia and which she was holding under certain conditions defined in the Treaty of Peking (1905), China was opposed to Japan's scheme of reconstruction and extension. (See JAPAN, paragraphs on *History*.) Other questions pertained to the collieries, and to the status of Chien-tao. The last concerned a claim on the part of Japan that this territory was Korean and had been illegally occupied by China, and that even if Chinese sovereignty were recognized, Japan must have jurisdiction over the Korean element in the population, which was four-fifths of the total. China on her side produced evidence that Koreans had been permitted by her to occupy this territory only on condi-

tion that they surrender their nationality. The territory was as large as an ordinary Chinese province, and this question ranked next in importance to those of the Fa-Ku-Men and Antung Railways among the issues between the two countries. China proposed a reference of the Manchurian railway question to The Hague. This was refused by Japan on the ground that the Hague Convention confined arbitration to cases in which diplomatic means had been exhausted and that this was not true of the present case. On August 6 Japan issued an official communication blaming China for her delay and accusing her of an unreasonable attitude in the matter of the Antung line. To this China replied on August 11 with an appeal to the text of the Treaty of Peking in proof of Japan's violation of its conditions. Nevertheless China indicated a willingness to give way to Japan's demands, in the Antung dispute, and in the following month agreed to a compromise on the other points in dispute. China regained control of the Chientao territory, but on the other hand agreed not to build a railway near or parallel to the Southern Manchurian Railway and not to build the line between Fa-Ku-Men and Hsin-min-tun without first consulting Japan. The September agreement between China and Japan as to the Manchurian railways was interpreted as meaning virtual withdrawal from Manchuria, whose railways were thenceforth to be controlled by the Japanese. China practically agrees not to build any railways in Manchuria. Japan's railways when completed will reach into the heart of the country. One will connect Port Arthur in Dalny with Mukden, and the other will traverse Korea. For further details, see JAPAN, paragraphs on *History*.

DIFFICULTY WITH RUSSIA. The Russian policy in Manchuria was condemned in China as virtually placing under Russian jurisdiction those parts of Manchuria for which it made regulations and on which it levied taxes. On February 21 the Russian authorities in the railway zone west of Kharbin closed the Chinese stores and warehouses at the chief points because their owners would not pay the taxes levied by the railway officials. On May 11 a convention between the two countries was signed for the joint administration of the railway zone and recognizing the sovereignty of China. The United States and Austria-Hungary objected to this preliminary agreement, holding that the Treaty Powers alone could originate laws affecting the right of residence in the international settlements in Chinese territory. Great Britain on the other hand approved if the regulations were framed with the advice of the British consuls. The ratification was checked by these protests. On December 14 the representatives of Russia and China began a conference at Kharbin for a settlement of the Manchurian questions. A question also arose as to the navigation of the Amur River. The Russian Minister declared in August that the Chinese custom house at Aigun, which had recently been put into operation, was a violation of the treaties of Aigun and St. Petersburg.

RAILWAY AFFAIRS. There were frequent complaints during the year of the Chinese attitude toward railways in which British capital was invested. For example, the control and construction of the Shanghai-Hang-chau-Ning-po line, to which British investors had lent £1,-

500,000, were vested in the Chinese Imperial government and a British engineer was to take charge. It was reported on February 17, however, that the conditions of this agreement were violated, that the funds were squandered, that the authority of the British engineer was disregarded and that the railway showed every possible defect. Later this work on the line was reported to be at a standstill. The British engineers were unable to go on with the work or to collect any payment for what had been done. The inefficiency of the central government was blamed for this state of affairs. In March it was announced that the German Asiatic Bank's overtures for a loan of \$15,000,000 to China for the Canton-Hankow line was causing opposition on the part of France and Great Britain. Complaints that the Chinese managing director was obstructing the British section of the Tientsin-Yang-tze Railway led Chinese authorities to promise an investigation. A conference between the British, French, and German financiers as to this loan was fruitless. It was then reported that the Germans had received a special concession, that the British legation had protested and the Chinese government was hesitating. Later, however, an agreement was announced between the bankers of the three nations, whereby the Germans withdrew all claims as to the Hankow-Canton line, and the British withdrew all claims to the Hankow-Szechuen line. This caused some criticism in England as allowing an extension of German influence. On May 15 it was agreed that the Germans should have the appointment of the chief engineer for the Hankow-Chang-tu line and the British for the Canton-Hankow line. On June 5 negotiations were completed for a loan of £5,500,000 for railway building in Hu-pea and Hunan, the loan to be equally divided between the British, French and German bankers. Soon afterwards the United States representative protested against the ratification of this loan agreement on the ground that China was bound to apply first for American capital on the Hankow-Szechuen line if any foreign loan were needed. In consequence of this claim the Chinese government deferred ratification. On August 17 the Hankow railway loan question was reported as settled on the following basis: The amount of the loan was raised to about \$30,000,000, of which three-fourths was to be divided among the British, French and German groups and one-fourth was to be subscribed by American capitalists. The curt reply of the British group of financiers in the spring to the original American proposal for coöperation in this loan led to reports of ill-feeling and some discussion in the newspapers. The American proposal was approved by the United States Minister and favorably regarded both by the French and British interests before it was submitted to the British corporation, but the British government had no knowledge of the American government's interest in the matter. The Chinese were dilatory and the delay was attributed in the United States to the opposition of the British financial group which was supposed to be supported by the British government. The Pekin-Kalgan line was opened in October.

POLITICAL CONDITIONS. The dismissal of Yuan Shih-Kai, Viceroy of Chi-li from all his offices on January 3 was greatly deplored by the foreign representatives, and there was frequent reference during the year to the need of

his high administrative abilities. Liang-Tun-yen, a Yale graduate, was appointed to succeed him as assistant president of the Wai-wu-pu. In February there were reports of a scandal in the Board of Communications. Charges of official inefficiency and corruption were made and the president of the Board, Chen-pi, was cashiered. Under the regency there were signs of weakness in the central administration and reports of palace intrigues. The reforms promised by the government were either not introduced or were very ineffectively carried out. Under the decree providing for a uniform system of weights and measures, there was devised a very cumbersome system which apparently would lead to sinecures and monopolies. Although there had been benefit from the abolition of classical examination and from the restriction of opium-smoking, the mandarins in general were opposed to all changes and the only hope seemed to be in the awakened interest of the people, especially of the intelligent and well-to-do. There were complaints in the summer from among the foreign residents that the former evils of inefficient administration again marked the Wai-wu-pu and for this the president, Prince Ching, was chiefly blamed. It was charged that he was corrupt and negligent, seldom visiting the office or holding communication with the foreign ambassadors, and there were complaints of a lack of consideration for the foreign representatives. It was said that the Prince Regent did not take a sufficiently serious view of the importance of the foreign office. Serious obstacles to reform were the unsatisfactory relations between the central and the provincial governments and the cumbersome financial system of the empire. Sir Robert Hart, commenting on the financial system, for example, declared that the land tax, which yielded only 25,000,000 taels, ought, if levied in the same way as in India, to yield 400,000,000 taels a year, but he said that improvement was practically impossible on account of official corruption. There was no assurance that any new system would prevent the money from finding its way into official hands. The prospect for any thorough financial reform was not favorable. In April a new citizenship law went into effect forbidding under heavy penalties any native Chinaman to become a nationalized citizen of another country.

On October 14 the new provincial assemblies met as ordered by the Imperial Decrees of October 19, 1907, and July 22, 1908, the elections having been going on for some time past. There was a provincial assembly for each of the twenty-two provinces and for Manchuria and the New Dominion. The halls of assembly were situated at the seat of the governor or viceroy. The functions of these assemblies were purely deliberative. An Imperial decree was issued on October 15 advising the governors and viceroys as to their duties of supervision and repeating the advice given in previous decrees as to the deliberation of the new bodies. This was an important step in the carrying out of the programme of constitutional preparation. By the Imperial edict of September, 1907, a council of government was established, to be known as the Department of Constitutional Study, and Investigation (Chih Cheng Yuan), and to form the nucleus eventually of an upper house of parliament. Its function consists in advising the central government as to the fundamental laws

which it thinks desirable. The provincial bodies were to perform a similar office for the provincial governments. The decree creating them contains the following passage: "The consultative council is an institution in which public opinion will be ascertained and for which the members of the central council may be recruited. Let our people point out clearly through the councils what are the evils that should be abolished in their respective provinces and what are the reforms that they desire. But let them also remember the duty which they owe to the court and to the country. Violent discussion should be prevented, lest the order and safety of society might be disturbed." The qualifications of the electorate were experience in public office, or the possession of a high school diploma or the ownership of property valued at \$5000 in silver. By the decree of August 27, 1908, it will be remembered, the grant of a constitution was definitely promised nine years from that date, that is in 1917, reforms to be gradually introduced in the meanwhile. A number of political associations have been formed to aid in the task of preparing the country for constitutional government, such as the Association for Preparing Constitutional Citizenship, the Constitutional Discussion Society, the Association for the Study of the Constitution, and others.

OTHER EVENTS. In February an Imperial decree created a new Naval Department with Prince Su as chief and Prince Ching as adviser. In March an Imperial edict was issued thanking the Powers for their coöperation toward the suppression of opium and declaring that China's anti-opium policy must be strictly enforced. It ordered means to be found for the replacement of the opium tax by some other means of raising revenue. In July an Imperial edict was issued to carry into effect the preliminary measures for the naval reorganization recommended by a Commission of Investigation. It created a naval and military advisory board, thus advancing toward a central administration in place of the subdivided control under four separate viceroys, and it appointed the Regent's brother and one of the admirals to carry the plans into effect. During the year considerable progress was made toward the establishment of a Chinese university by the Chinese Emergency Committee. This project for a Christian, but undenominational, university, in Central China was first broached by Lord William Cecil and has been supported from the first by the Universities of Oxford and Cambridge. Among the leaders of the movement are Sir Robert Hart, the Archbishop of Canterbury and the Lord-Mayor of London, and many prominent public men and members of religious bodies in England. It aims not at devising new methods, but at correlating existing institutions. It was decided that the best site was in the populous district occupied by the three great cities, Hankow, Wuchang and Han-yang, where there were already three Christian colleges under American and English control, which, it was thought, might be a nucleus for the new university. A number of subscriptions were made to the funds for this purpose during the year. Another important event was the establishment of the University of Hong-Kong (q. v.). During the year there was an increase in the already large number of Chinese students in Japan, who early in the year were said to number 10,000. Some trouble arose over the

boycotting of the British steamers at Kiu-kiang, but the trouble seemed to be subsiding in the closing months of the year. Posthumous honors were rendered by Imperial decree to one Yung Lin, whose suicide was a typical instance of the Oriental method of displaying devotion to a cause. He killed himself in order to throw a proper emphasis upon a memorial which he addressed to the government on behalf of reform. The memorial sets forth the dangers of corrupt administration, blames the people for their wasteful expenditures, the officials for their venality and peculations, and the higher authorities for their failure to punish wrongdoers. It urges the need of radical reforms, the selection of good and able administrators, and the development of the national resources.

CHLOROPHYLL. See BOTANY.

CHOLEMIA. This curious affection was studied by Hawkins and Dudgeon in 1909. Isolated cases have been observed for many years, but so far have been little studied. The condition is a congenital and a family affection and is characterized by the presence of the constituents of the bile in the blood. The patient differs from most jaundiced individuals, however, in several respects. Jaundice appears at birth or soon after and persists for years with little or no change. It differs also from ordinary icterus in that the urine is free from bile pigment, and itching and other signs of constitutional disturbances are lacking. There is no stomach or intestinal disturbance, the appetite is good, and the bowels regular. Both physical and mental development are normal. Beside the jaundice, there is some enlargement of the spleen and a moderately severe anemia. Life does not appear to be shortened by the disease. Certain physicians of the French school have tried to establish a relation between congenital family cholemia and dark muddy complexions, melanoderma and various pigmentary skin diseases. Hawkins and Dudgeon suggest as a possible cause inborn defects in the minute structure of the liver, allowing the bile to enter directly into the lymphatics, or changes in the ducts affecting bile pressure. They found that the red blood cells in these patients were abnormally fragile and that they occasionally had hemoglobinuria.

CHOLERA. There was a severe epidemic of cholera in Russia during 1909. In St. Petersburg alone about 14,000 persons were attacked and 5500 died of the disease. It is estimated that 30,000 cases occurred in Russia, of whom 13,253 died (about 50 per cent.). The epidemic spread to East Prussia, and was introduced into Holland by sea, 15 cases and 10 deaths having occurred at Rotterdam. There were also 6 deaths at Boom, in Belgium. Blumenthal calls attention to the freedom enjoyed by Moscow from the epidemic and attributes this circumstance to the installation of a good water supply. During the year there were only 16 cases of cholera at Moscow, whereas in previous epidemics, particularly those of 1830, 1848 and 1853, there were respectively 8798, 59,000 and 4000, with a mortality approximating 50 per cent. In 1893 a new water system was installed, providing the city with good spring water, supplemented later by a filtering plant for the river water. Prophylactic vaccination against cholera was formally adopted by the authorities and a circular of instructions published for general distribution. The circular urges the following points: 1.

The statistics to date show that prophylactic vaccination guarantees a certain protection against cholera, but the vaccinated must observe the general hygienic precautions. 2. The vaccination must not be compulsory. 3. Anti-cholera vaccination is harmless and causes only a brief reaction. 4. Of the two methods in vogue, vaccination with living cultures (Haffkine), or with killed cultures (Kolle), the latter is to be preferred. 5. During the epidemic of cholera vaccination must be done with great care, to exclude those already infected, and those liable to be exposed to infection before immunity is established. 6. Vaccination must be repeated two or three times at intervals of from five to seven days. The first dose of from 0.5 to 1 c.c. can be increased to 2 or 3 c.c. on repetition. 7. Physicians were urged to keep a careful record of all data. See VITAL STATISTICS.

CHRISTIAN CONNECTION. See CHRISTIANS.

CHRISTIAN ENDEAVOR, UNITED SOCIETY OF. A religious society for young people founded in Portland, Maine, in 1891 by Reverend Francis E. Clark. There were in 1909 71,789 societies with a membership of about 3,559,000. The 24th International Christian Endeavor Convention was held at St. Paul, Minn., July 7-12, 1909, and the 4th World's Christian Endeavor Convention was held at Agra, India, November 20-23. During the year the Society purchased a site on the corner of Huntington and Longwood Avenues, Boston, for the new International Headquarters Building, for the erection of which a movement has been carried on since 1905. This building was to cost in the neighborhood of \$75,000. The officers in 1908 were: President, Francis E. Clark, D. D., LL. D.; General Secretary, William Shaw; Editorial Secretary, Amos R. Wells; Treasurer, Hiram N. Lathrop; Publication Manager, George B. Graff. The official organ is the *Christian Endeavor World*, published in Boston.

CHRISTIANS. A religious denomination in the United States and Canada, which originated in the early part of the nineteenth century. It claims the name Christians "not as a sect name, but fraternally, as a name of union." The church allows latitude of theological views and asserts the importance of fellowship of all followers of Christ. Two bodies, called the Christian Church and the Christian Church South, which were separated in 1854 through failure to agree on the slavery question, are now closely affiliated. The denomination, according to the latest available statistics, has 101,539 members, 1340 churches and 1348 ministers. Missionary and educational interests of the church were carried on by aggressive and energetic measures during 1909. During the year \$26,353 were spent for its missions. In the various schools of the denomination are enrolled about 1000 students with about 75 instructors. During 1909 schools were established in Alabama, Virginia, and Wyoming. In the last State a colony was formed at Jireh and a college opened there. The cornerstone of the building was laid October 21, 1909. The annual expenditures of the church are about \$75,000. There are 277 Christian Endeavor societies in the church with a membership of about 7000. The official organ of the denomination is the *Herald of Gospel Liberty*, published at Dayton,

Ohio. The meetings of the American Christian Convention, which are quadrennial, will be held in 1910. This representative body has charge of the general, educational, missionary and other interests of the church.

CHRISTIAN SCIENTISTS. The designation employed by members of a religious denomination, which was founded by Mrs. Mary Baker Eddy. The doctrines of Christian Science are taken from an interpretation of the Scriptures contained in *Science and Health with a Key to the Scriptures*, written by Mrs. Eddy and published in 1875. The Church of Christ, Scientist, was founded in 1879. The First Church of Christ, Scientist, Boston, Mass., of which Mrs. Eddy is honorary pastor, is the Mother Church of the denomination, all others being branch churches. No exact statistics are available for the strength of the denomination, but, according to the latest figures available, there were in 1909 about 85,000 communicants, 668 churches and 1336 readers, who fill the place of ministers. There are many institutions for teaching Christian Science and about 4000 practitioners of Christian Science mind healing. Organizations exist in almost every State in the United States, and there are branches in Canada, Nova Scotia, British Columbia, Mexico, the Bahamas, British West Indies, the Hawaiian Islands, Cuba, Philippine Islands, Great Britain, France, Germany, Norway, Switzerland, Italy, Austria, China, South Africa and other countries.

The most important event in the history of the church in 1909 was the discipline of Mrs. Augusta E. Stetson by the First Church of Christ, Scientist, in Boston. Mrs. Stetson was formerly first reader of the First Church of Christ, Scientist, in New York. Mrs. Stetson had for many years been at the head of this church. Charges were brought against her and several of her students that her methods of mental healing were at variance with the principles of Christian Science. By a number of witnesses it was alleged, among other things, that she had fallen into error by indulging in mental malpractice, and that she had expressed a desire that harm might come to several of those whom she considered to be her enemies in the church. Mrs. Stetson insisted on her loyalty to Mrs. Eddy and her teachings. She was, however, brought before the members of the First Church of Christ, Scientist, of Boston, and after a prolonged hearing was deprived of her right to teach and practice, and of membership in the Mother Church. Subsequently the members of the First Church of Christ, Scientist, of New York, a majority of whom had been thought to be adherents of Mrs. Stetson, took action which signified its approval of the action of the Board of Directors of the Mother Church in Boston. Mrs. Stetson accordingly withdrew from all connection with the church.

CHURCHES OF GOD. A religious denomination whose doctrines agree in general with those held by the Baptists. It was founded in 1830, as the result of the preaching of John Winebrenner, a German Reformed pastor at Harrisburg, Pa. The denomination is sometimes given the name of Winebrennians. In 1909 the denomination numbered 24,356 communicants, with 518 churches and 482 ministers. The churches are divided into seventeen annual elderships, delegates from which con-

stitute the general eldership of the Churches of God, which meets every four years. The denomination is strongest in Pennsylvania, West Virginia, and the States of the Central West. A college is maintained at Findlay, O., and a collegiate institute at Fort Scott, Kansas. Mission work is carried on in India. The denomination has a publishing house and bookstore at Harrisburg.

CHURCH OF CHRIST, SCIENTIST. See CHRISTIAN SCIENTISTS.

CIGARS AND CIGARETTES. See TOBACCO.

CIVIC ASSOCIATION, AMERICAN. An organization formed in 1904 at St. Louis as a merger of two national organizations which had previously existed, with similar purposes. The Association devotes its efforts to the solution of physical as distinguished from the political problems of communities, and particularly to the unfolding and development of the ideals of beauty and efficiency of home, town, city and national life. Its activities are conducted through various departments, and included in its work have been efforts to make living conditions clean, healthful and attractive, to extend the making of public parks, to promote the opening of gardens and playgrounds for children and recreation centres for adults, to abate public nuisances, including bill boards, objectionable signs, needless noises and unpleasant and wasteful smoking factory chimneys; to preserve great scenic wonders, such as Niagara Falls and the White Mountains, from commercial spoliation. During the year 1909, through the direction of the Association, marked advances were made toward obtaining uniform legislation in forestry, city tree planting, the elimination of smoke and the abatement of the bill board nuisances. In its continuous efforts for the preservation of Niagara Falls, the Association was active early in the year in securing the passage of a joint resolution of Congress, continuing in effect the Burton bill, which limits the amount of water which can be diverted from the Falls for commercial purposes. Only by the most diligent efforts of the Association have the Falls been saved in their beauty to the American people. The Association has been active in impressing upon cities the importance of proceeding along comprehensive lines for park and boulevard development. At the annual convention of the Association, held in Cincinnati, in November, 1909, city planning was one of the leading subjects for discussion. In the year 1910 a new department will put forth energetic efforts for the elimination of the common house fly as a menace to health. Another department will conduct a campaign for civic education, enlisting the coöperation of churches and schools. The officers of the Association, elected in November, 1909, for the year 1910, were as follows: President, J. Horace McFarland; First Vice-President, Clinton Rogers Woodruff; Treasurer, William B. Howland; Secretary, Richard B. Watrous; Vice-Presidents, James R. Garfield, Rev. John Wesley Hill, W. W. Hannan, George W. Marston and Mrs. Edward W. Biddle. The headquarters of the Association are in Washington.

CIVIC FEDERATION, NATIONAL. An organization founded in Chicago in 1900 "to organize the best brains of the nation in an educational movement toward the solution of

some of the great problems relating to social and industrial progress; to provide for the study and discussion of questions of national import; to do this under the crystallization of the most enlightened public opinion; and when desirable form legislation in accordance therewith." The work of the Federation is done with various bureaus. Among the most important of these is the Welfare Department, the function of which is to promote welfare work among the employees of private enterprise and among those engaged in government service. The Federation has been particularly active in attempts to bring to pass adequate employers' liability laws.

The achievements of the National Civic Federation for the year 1909 culminated in the annual meeting and in the national conference on uniform State legislation which the Federation called in Washington early in January, 1910. A brief description of these two gatherings, attended by leading employers, leading labor men and representatives of the general public, will indicate to what ends the Federation's energies were bent in 1909.

The several sessions of the annual meeting on November 22 and 23 at Hotel Astor, New York, including the annual banquet, were devoted to discussions of wage earners' insurance in its various forms. The subject covered governmental employees as well as employees in private enterprises, and was considered under the various forms of compensation for victims of industrial accidents, employers' voluntary sick and death funds and retirement funds or old age pensions. Such topics were chosen by the participants as: "The Next Step in Employers' Liability in the United States," "Shall the Industry Bear the Burden Incident to Industrial Accidents," "The Constitutional Phase of Providing for Compulsory Compensation in Industrial Accidents," "Avoidance of Accidents More Important than Compensation," "Do Employers' Voluntary Relief Funds Adequately Compensate?" etc. The speakers included public men, wage earners and employers. English and German authorities on the subjects of compensation in their countries also delivered addresses.

Recognizing that in the United States some of the large railway systems, some of the large industrial corporations, the insurance companies, labor organizations, benefit associations and philanthropists have from their several standpoints put into practice for special groups of people some forms of compensation; and that the leading European countries have already legislated on compensation and insurance subjects in varying ways with varying success; the aim of the annual meeting was to look at the question from all sides and offer to the public, through its various speakers, fair presentations of systems of wage earners' compensation and insurance which are at present practiced and which might be more widely extended in this country. See EMPLOYERS' LIABILITY.

As a result of the annual meeting the following committees were formed: Committee on Prevention of Mining Accidents, Mr. John Hays Hammond, mining engineer, chairman; Committee on Wage Earners' Insurance, Mr. George W. Perkins, chairman; Committee on Compensation for Industrial Accidents and their Prevention, Mr. August Belmont, chairman; Committee on Pensions for Public Employees, Hon. William R. Willcox, chairman.

Such a subject as wage earners' compensa-

tion and insurance is naturally a prominent one with the Welfare Department of the National Civic Federation. No better idea of its constantly broadening work can be gained than through illustrations given by the chairman of the department in his annual address. He said in part: "One company in New Hampshire, employing twelve thousand operatives, is now introducing a comprehensive plan for housing and recreation, an improvement upon anything which has yet been undertaken in the United States. The mills of this company are already models of cleanliness and appliances for good ventilation and sanitation."

The Welfare Department, in three ways, has secured unique cooperation by:

- (1) Addressing letters of information and inquiry to employers in fifty different industries;
- (2) Securing the consent of employers' associations to arrange programmes at their annual meetings on the welfare work in their respective trades; and
- (3) Asking trade journals to collect and publish illustrated accounts of welfare work in the industries covered by their periodicals.

The reports of the Woman's Welfare Department, as presented at the annual meeting by the executive heads of the Columbia, North Carolina, New York and New Jersey, and California sections, the Committee for Industrial Employees, etc., covered a wide and useful field, ranging from careful investigation of the cotton industry and factories of the garment trade to endeavors for better working conditions for government employees in Washington, D. C., establishment of lunch rooms in different localities, nurseries, and homes for mill girls. The aim of this department continues to be "to use its influence in securing needed improvements in the working and living conditions of women and men wage earners in the various industries and in government employ." The membership is largely composed of women who are themselves stockholders, or who through family relationships are interested in industrial organizations.

During 1909 the National Civic Federation was preparing for the great national conference on uniform State legislation held at the Belasco Theatre, Washington, D. C., January 17-19, 1910. In calling this conference, the National Civic Federation worked in close conjunction with the Conference of Governors and the national association of Commissioners on Uniform State Laws.

CIVIC TRAINING, See EDUCATION IN THE UNITED STATES.

CIVIL SERVICE REFORM LEAGUE, NATIONAL. A federation of the various civil service reform associations throughout the United States, the first of which was founded in 1877 in New York City. Other associations were subsequently formed and the New York Association extended its membership to localities outside of New York. Following the assassination of President Garfield by a disappointed office seeker a conference of delegates from the Association was held at Newport, R. I., in 1881. As the result of this conference the League was formed. Its general purpose as set forth in the constitution is: "To advance the cause of civil service reform in the United States." The extension of civil service reform in the Federal, State and municipal governments has been con-

stant since the organization of the League. In the Federal service over 225,000 positions are now filled in accordance with civil service reform principles. Comprehensive civil service laws, applying to both State and municipal governments, have been adopted in New York, Massachusetts and New Jersey. In Wisconsin the civil service law applies to the entire State service and a general law requires appointments in the police and fire service of cities to be made as the result of examination. In Colorado and Illinois there are civil service laws affecting the service of State institutions. Civil service laws have also been adopted in the following principal cities: Chicago, Denver, Philadelphia, Pittsburgh, Scranton, San Francisco, Los Angeles, Milwaukee, Cincinnati, Kansas City, Cleveland, Des Moines, and Norfolk. In this remarkable progress the League and its constituent associations have taken an active and important part. During 1909 the following achievements of the League may be noted: The Crumpacker Census Bill, introduced in 1908, provided for the selection of the 4000 additional clerks on the old "spoils" basis. By an active campaign the League aroused so much public opposition to this feature that the bill as finally passed in 1909 provided for competitive examinations. (See article UNITED STATES, paragraph *Census*.) The League has for many years advocated the selection of the fourth-class postmasters, numbering about 50,000, through competition. In the latter part of 1908 representatives from the League visited President Roosevelt and urged him to place these important positions in the competitive class. Shortly afterward he issued an order, classifying, as a beginning, some 15,000 postmasters. Political activity of office holders in the unclassified service (not covered by the civil service rules) has long been a notorious evil, and a special committee of the League made a careful investigation during 1908-9 as to the part taken by these office holders in the recent campaign and published a report showing the menace to free institutions which lay in such activity. There are two classes in individual membership in the League, associate members at \$5 per year, and sustaining members at \$25. The officers in 1909 were: Charles W. Eliot, President; Richard Henry Dana, Chairman of the Council; A. S. Frissell, Treasurer, and Elliot S. Goodwin, Secretary.

CLARK UNIVERSITY. An institution of higher learning at Worcester, Mass., founded in 1889. The chief aim of the University is the encouragement of original research, although it includes an undergraduate college department. The College, however, is a distinct organization in itself. The attendance in 1909 was 109 in the University, and 208 in the College. The University includes nine departments. It publishes the *American Journal of Psychology*, the *Pedagogical Seminary*, and the *American Journal of Religious Psychology and Education*. The president of the University is G. Stanley Hall; Carroll D. Wright, president of the College, died in 1909, and was succeeded by Edmund Clark Sanford, who was professor of experimental and comparative psychology at the University. The endowment of the University and College is about \$4,000,000.

CLEBORNE, CHRISTOPHER JAMES. An American surgeon and rear-admiral (retired),

died October 2, 1909. He was born in Edinburgh, Scotland, in 1838, and entered the United States naval service in 1861 as assistant surgeon. He served throughout the war and in 1863 was promoted to the rank of surgeon. In 1878 he was made medical inspector and in 1887 medical director. During the Spanish-American war he was on duty in command of the United States Naval Hospital at Norfolk, Va. On November 10, 1899, he was transferred to the retired list as a medical director, with the rank of rear-admiral.

CLIMATE, MODIFICATIONS OF. See GEOLOGY.

COAL. In the following account of the coal production of the United States and foreign countries, statistics relate only to the total production. The production of the individual States in 1908 and in 1909, so far as they are available, will be found in the articles on these States. The production of foreign countries will be found in the statistical matter covering these countries. The year 1908 was one of general depression in the coal-mining industry, yet its total production exceeded that of any year in the history of coal mining in the United States, with the single exception of 1907, which was a year of record-breaking activity and production. There were produced in 1908 415,842,698 short tons of coal of a spot value of \$532,314,173. Of this total production 74,347,102 long tons were Pennsylvania anthracite and 332,573,944 were bituminous and lignite. The total production in 1907 was 480,363,424 short tons, valued at \$614,798,898, of which 85,604,312 short tons or 76,432,421 long tons were Pennsylvania anthracite, and 394,759,112 short tons were bituminous, semi-bituminous and lignite. Compared with this record the production in 1908 showed a decrease of 64,520,726 short tons. In spite of the depressed conditions in 1908 the decrease in the production of Pennsylvania anthracite was only 2,335,558 short tons. A considerable falling off in the demand was naturally to be expected in view of the depressed conditions, especially in the great manufacturing centres of the East, where anthracite is so largely used. But the results as recorded indicate that as limited as the territory is for the consumption of anthracite, some curtailment in the individual demand was, probably, to a large extent offset by the increased population in the anthracite-producing territory. In the production of bituminous coal, however, the decrease in 1908 as compared with 1907 amounted to 62,185,168 short tons in quantity and \$77,079,504 in value. In the face of the demoralized trade conditions the insignificant larger decrease in the percentage of value as compared with the production is notable, and was in part due to the necessity of maintaining prices because of the fact that in most of the important producing States operations are carried on under agreement with the United Mine Workers of America, and there was no cut in mining wages, so that the cost of mining was relatively as high as in the more prosperous years of 1906-7. Another reason for the slight falling off in value was the fact that on account of trade conditions consumers were more exacting in their demands than they were in 1906-7, when operators were able to market practically all the coal that they could mine. This caused a larger percentage of slack and other salable coal to be thrown on the dumps in 1908, so that the

returns to the operators were considerably less than appears in the statistical records.

Of the thirty States and Territories which produced coal in 1907-8, there were only three in which increased production was shown in the latter year, these being California, Oregon and Texas. The increases in the first two States named were unimportant. The increase in Texas was due in part to the continued decrease of the production of petroleum in the State, and in part to the rapid growth of population and the comparatively prosperous conditions which prevailed in that State. Massachusetts in 1908 appeared for the first time as a coal producer, a small quantity, about fifty tons of lignite, having been mined at Vineyard Haven for local use during the year.

Of the total decrease of 62,185,168 short tons in the production of bituminous coal, approximately 30 per cent., or 18,061,478 short tons, was in the amount of coal made into coke. The largest decrease in the production of bituminous coal showed first in Pennsylvania, with West Virginia second and Ohio third.

The total production of coal in the United States, from the beginning of coal mining, amounted at the end of 1908 to 5,970,576,865 short tons. The growth of the industry in recent years is shown from the fact that the average annual production from 1896 to 1905 was 283,240,275 short tons, while the average production from the three years 1906 to 1908 inclusive was 436,787,800 short tons, showing an increase of 153,547,525 short tons, or 54.2 per cent.

The coal mines of the United States gave employment in 1908 to a total of 690,438 men as compared with 680,492 in 1907, and 640,780 in 1906. The increase in the number of men employed in 1908 as compared with 1907 gives a reasonably fair indication of the condition of the labor market in 1908. In the production of anthracite the average output made by each man in 1908 was 478 short tons as against 512 short tons in 1907. The average bituminous production for each man in 1908 was 644 tons as against 769 tons in 1907.

The total quantity of coal mined by machines in 1908 amounted to 123,183,334 short tons, which was equivalent to 37½ per cent. of the total production in the States where machines were employed. This is an increase of about two per cent. over the machine production of 1907.

The year 1908 offered a marked contrast to 1907 so far as interruption to mining operations because of labor troubles was concerned. There were fewer men idle because of strikes or lockouts in 1907 than in any year since 1901, and the amount of time lost from this cause in that year was the smallest in a decade. In the spring of 1908 the wage agreement, which had been made in 1906 for two years, expired, and on April 1 there was in the "organized" States a general suspension of mining operations pending the renewal of the wage agreement. The suspension was, however, of a pacific character, and while the mines were closed down, there was, as a general thing, good feeling between the contending parties and there were, with the exception of Alabama, but few instances of disorder or violence.

Practically the entire output of both anthracite and bituminous coal in the United States

is consumed within the country. The total exports of coal in 1908 amounted to 13,275,558 short tons, which, deducted from the production of 415,842,698 short tons, shows a consumption of coal of domestic production amounting to 402,567,140 short tons. If to this are added the imports, which in 1908 amounted to 1,645,444 short tons, the total consumption of coal in the United States in 1908 is shown to have been 404,212,584 short tons, equivalent to 97 per cent. of the domestic production.

There were fewer miners killed in the coal mines of the United States in 1908 than in 1907, but with the exception of the latter year, the record was the largest in the history of the industry, while in the number of men injured the record for 1908 exceeded that of even 1907. The total number of deaths from accidents in the coal mines in the United States was 2450 as compared with 3125 in 1907. The number of non-fatal accidents increased from 5316 to 6772. Of the 2450 men killed in 1908, 678 were in the anthracite mines of Pennsylvania and 1772 bituminous mine workers. Of the 6722 injured 1170 were anthracite workers and 5602 were employed in the bituminous mines. The death rate per thousand employees in 1908 was 3.6 and the number of tons mined for each life lost was 167,545. In 1908 there were 396 fatalities due to gas and dust explosions, while 326 men were injured from such explosions. There were 1080 killed and 2591 injured by the falling of roofs. The impression that most of the deaths in coal mines are caused by explosions is, therefore, a popular error.

The average price per ton for coal at the mines in 1908 was \$1.28, which was the same figure as in 1907. The average of the Pennsylvania anthracite was \$1.90, while that of the bituminous was \$1.12. Anthracite shows a decrease of one cent from the price of 1907 and the bituminous a decrease of two cents.

The business depression of 1908 was felt more severely in the United States than elsewhere. The coal production fell off in Great Britain but not to such an extent as in the United States. It declined slightly in Belgium, and increased in Germany, France, India, Canada, and New South Wales. Because of the serious effects of the depression on the United States the percentage of the world's supply produced in this country decreased from 39.4 in 1907 to 35.6 in 1908. In Table No. 1 is presented a statement of the coal production of the principal countries of the world in the latest years for which figures are available.

The production of coal in the United States in 1909, while exceeding that of 1908, did not reach the high-water mark attained in 1907. It was impossible to give accurate information regarding tonnage at the close of the year, but from reports received from the United States Geological Survey, it is apparent that the increase in production in 1909 over 1908 was between 8 and 10 per cent., which would indicate a total production of from 440,000,000 to 450,000,000 short tons. The shipment of anthracite from the mines during the eleven months ending November 30, 1909, amounted to 56,194,447 long tons against 58,837,076 long tons for the same period in 1908. The larger production from the anthracite mines in Pennsylvania in 1908 was caused by stimulated activity due to an apprehension of suspension on April 1,

TABLE No. 1

THE WORLD'S PRODUCTION OF COAL

Country	Usual unit in producing country	Equivalent in short tons
United States (1908)	long tons..	371,288,123
Great Britain (1908)	do.....	261,506,379
Germany (1908)	metric tons..	215,283,474
Austria-Hungary (1907)	do.....	48,180,849
France (1908)	do.....	37,622,556
Russia and Finland (1907)	do.....	26,023,344
Belgium (1908)	do.....	22,679,300
Japan (1907)	do.....	15,935,952
India (1908)	long tons..	12,769,635
Canada (1908)	short tons..	10,904,466
New South Wales (1908)	long tons..	9,147,025
Spain (1907)	metric tons..	3,887,236
Transvaal (1908)	long tons..	3,012,692
New Zealand (1907)	do.....	1,831,009
Natal (1907)	do.....	1,530,043
Queensland and Victoria (1907)	do.....	964,229
Mexico (1906)	metric tons..	767,364
Holland (1906)	do.....	532,780
Italy (1907)	do.....	453,137
Sweden (1907)	do.....	305,338
Cape Colony (1907)	long tons..	128,607
Tasmania (1908)	do.....	61,068
Other countries a	do.....	7,000,000
Total		1,167,941,188
Percentage of the United States		35.6

a Includes China, Turkey, Servia, Portugal, United States of Columbia, Chile, Borneo and Labuan, Peru, Greece, etc.

1909, when the wage agreements would terminate. This activity continued during the first three months of 1909, and the shipments in March, 1909, were the largest in the history of the trade. With the renewal of the wage scale in April, which was a continuance of the awards of the anthracite strike commission for a third period of three years, production fell off, and the shipments of the summer months of 1909 were much less than in either 1907 or 1908. In Maryland, Virginia and West Virginia, the production of 1909 was nearly equal to that of 1907. In the State last named an epoch-making incident in the development of the coal-mining industry was the completion early in the year of the Virginian Railway, the first transportation line in the United States constructed from the coal fields to the seaboard. Increased production of from 15 to 20 per cent. was shown in Alabama. In the interior States, Illinois, Indiana and western Kentucky, and to some extent in Iowa, Kansas and Missouri, the chief influences affecting the coal-mining industry in 1909 was the increased use of oil and gas for fuel, and also the use of coke and of Eastern coals, which followed the agitation with regard to the suppression of smoke. In Arkansas, Oklahoma and Texas the production in 1909 was about the same as in 1908, while in the Rocky Mountain States reports at the end of the year indicated a much better condition in the affairs of 1909 than in 1908. In these States mining operations have not been interfered with by strikes, suspensions, or lockouts, the supply of labor has been satisfactory and the coal mines did not suffer from shortage of cars.

The total production of coal in 1909 is estimated by the *Engineering and Mining Journal* at 437,176,241 short tons. These estimates were based on reports of State mining inspectors and with estimates made when there were no statistics available. Table No. 2 gives the production of coal in the United States by States, according to the estimates of this authority:

TABLE No. 2
PRODUCTION OF COAL IN THE UNITED STATES

States	Bituminous	
	1908	1909
	Short Tons	Short Tons
Alabama	11,523,299	11,983,920
Arkansas	1,866,565	1,950,000
California and Alaska....	21,760	25,000
Colorado	9,703,567	10,666,459
Georgia and No. Carolina..	301,640	300,000
Illinois	51,507,991	(a) 49,163,710
Indiana	10,987,419	12,200,000
Iowa	7,490,000	7,500,000
Kansas	5,960,417	6,000,000
Kentucky	9,805,777	9,950,000
Maryland	4,377,094	4,600,000
Michigan	1,839,927	1,900,000
Missouri	3,547,000	3,600,000
Montana	1,979,417	2,204,000
New Mexico	2,772,586	3,010,000
North Dakota	317,840	336,000
Ohio	28,101,949	28,107,000
Oklahoma	3,633,108	3,187,200
Oregon	60,000	72,000
Pennsylvania	118,309,680	130,157,582
Tennessee	6,082,851	6,234,922
Texas	1,280,490	1,310,400
Utah	1,786,204	2,324,715
Virginia	4,224,821	4,310,000
Washington	2,977,490	3,307,000
West Virginia	41,360,500	47,469,797
Wyoming	6,100,000	8,197,200
Nevada and Idaho	10,240	10,000
Total bituminous	337,929,632	360,076,905
	Anthracite	
	1908	1909
Colorado	69,440	70,000
New Mexico	20,000	20,000
Pennsylvania	80,240,138	77,009,336
Total anthracite	80,329,578	77,099,336
Grand total	418,259,210	437,176,241

(a) For the fiscal years ending June 30.

For an account of labor troubles in coal-mining regions see STRIKES. For the coal fields of Alaska, see ALASKA; PUBLIC LANDS.

COCAINE HABIT. The wide prevalence of this degrading practice was the cause of continued alarm in 1909, and laws, forbidding the sale of cocaine, except on physician's prescription, were enacted or proposed in several States,

while in others vigorous efforts were made to enforce the already existing statutes against its promiscuous sale. Dr. Walter Benschel, sanitary superintendent of New York City, made an appeal to the Woman's Municipal League for funds to enable the health authorities to fight the traffic. He stated that many physicians bought cocaine for the purpose of selling it, but that there was no money to obtain convictions. In Chicago a new law was put into force and the conviction of two druggists for selling cocaine catarrh powder obtained, and a fine of \$500 imposed. The law holds that cocaine must not be sold in "patent medicines," or any form excepting on the prescription of a physician. In general it may be said that the health authorities have had uphill work on account of slow and tedious legal methods, the many loopholes of escape afforded the delinquents, and the local prejudice in favor of certain defendants. In Baltimore it has been decided that the State must present expert testimony when prosecuting alleged violators of the cocaine law, in order to obtain convictions. In a case under trial the judge said that unless the State could prove beyond doubt that the defendant (a physician accused of having prescribed cocaine illegally) had not given proper medical treatment, he could not find him guilty.

COCHIN-CHINA. A French colony and one of the states of French Indo-China (q. v.). Area, 21,988 square miles. Population (1906), 1,193,534. The population is mainly made up of Annamites, Cambodians, Moïs, Chams, Chinese, and a few Indians, Malays, and Tagals. Saigon, the capital and chief port, has 50,870 inhabitants; Cholon, about 130,000. There are about 380 schools, with 800 teachers and 19,000 pupils, besides a school of medicine at Saigon. The Buddhists number over a million, and the Roman Catholics about 73,000. Extensive irrigation and drainage works are under construction in the central and southwestern parts. Forests cover 1,748,694 hectares, and of the 1,522,666 hectares under cultivation, 1,358,706 are devoted to rice. The rice crop in 1907 was estimated at 1,200,000 tons; 1908, 900,000 tons; 1909, 1,500,000 tons. Other crops are corn, beans, sweet potatoes, earth-nuts, cotton, sugarcane, tobacco, pepper, fruits, etc. The live-stock is given as 241,744 buffaloes, 109,074 cattle, 11,243 horses, 709,380 swine, and 3492 sheep and goats. The fishery products are valued at 2,800,000 francs yearly. There are nine rice mills in Saigon and Cholon, with an output of 450 to 900 tons daily. The imports and exports are included in those of French Indo-China. In 1907 824 vessels of 1,290,430 tons cleared from the port of Saigon. There are at Saigon 5 banks or bank-agencies. The colony is administered by a lieutenant-governor (in 1909, J. M. Gourbeil), and is represented in the French Chamber by one deputy.

COCHRAN, DAVID HENRY. An American educator, died October 4, 1909. He was born at Springville, N. Y., in 1828, and graduated at Hamilton College in 1850. From 1850 to 1852 he was professor of natural science at the Clinton Liberal Institute. From 1852 to 1855 he was professor of natural science in Fredonia Academy. In 1855 he was appointed professor of chemistry and physics in the New York State Normal College, and in the following year he was chosen president of that institution, serv-

ing in that capacity until 1864. From 1864 to 1900 he was president of the Brooklyn Collegiate and Polytechnic Institute. In the latter year he retired. He was president of the American Society for the Regulation of Vivisection and was a member of many learned bodies. He was successful in the organization of evening schools and scientific lectures.

COCOS, or KEELING, ISLANDS. A group of about 20 small coral islands lying some 700 miles southwest of Sumatra and 1200 southwest of Singapore. They were administratively attached to the Straits Settlements in 1886, and were annexed to the Settlement of Singapore in 1903. Area, 9 square miles. Population (1904), 640. Coconut oil and copra are produced.

COINS, FOREIGN, VALUE OF. The table on page 171 indicates the values of foreign coins in United States money on December 31, 1909:

COKE. The production of coke in 1908, including beehive and retort oven coke, amounted to 26,033,518 short tons, valued at \$62,483,938, against 40,779,594 short tons, valued at \$111,539,126 in 1907, in which year the production exceeded all previous records in the history of coke-making in the United States. The average price per ton in that year was also the highest ever recorded. The production of 1909 was estimated by the *Engineering and Mining Journal* as 29,400,970 tons. The production by States, as estimated by that authority, is given in the table below:

States	1908	1909
Alabama	2,336,602	2,500,000
Colorado	854,662	1,091,882
Georgia and North Carolina	60,000	50,000
Illinois	310,540	315,200
Kansas	10,000	10,000
Kentucky	54,515	64,200
Missouri	5,000	5,000
Montana	29,482	35,600
New Mexico	353,240	430,000
Ohio	240,000	250,000
Oklahoma	24,580	55,000
Pennsylvania	12,287,828	18,717,413
Tennessee	250,491	224,204
Utah	321,200	180,969
Virginia	1,219,927	1,250,000
Washington	37,381	41,090
West Virginia	3,107,000	2,910,412
Other States (a)	1,994,218	2,270,000
Total	23,496,666	29,400,970

(a) Includes output of by-product coke for Massachusetts, Maryland, Minnesota, New York, Michigan, Wisconsin.

It will be noted that the production of 1908, as estimated by this authority, is considerably less than that given in the first paragraph, which is the production as recorded by the United States Geological Survey. Of this the production of the Connellsville and Lower Connellsville regions of Pennsylvania is estimated at 17,800,000 tons, as compared with 10,700,000 in 1908. The prices of coke in 1909 showed the most spectacular movement in the history of the industry. At the opening of the year furnace coke contracts were in force at \$1.90 and \$2.00, and by September, contracts for 1910 had been made at the rate of \$2.90. In the latter part of March a project was undertaken to consolidate all the coke operations of the Connellsville and Lower Connellsville regions with the exception of the H. C. Frick Coal Company

COUNTRY	Standard	Monetary unit	Value in terms of U. S. gold dollar	Coins	
Argentine Republic.....	Gold.....	Peso.....	\$0.965	Gold: argentine (\$4.824) and ½ argentine. Silver: peso and divisions.	
Austria-Hungary.....	Gold.....	Crown.....	.203	Gold: 10 and 20 crowns. Silver: 1 and 5 crowns.	
Belgium.....	Gold.....	Franc.....	.193	Gold: 10 and 20 francs. Silver: 5 francs.	
Bolivia.....	Gold.....	Boliviano.....	.389	Gold: *Silver boliviano and divisions.	
Brazil.....	Gold.....	Milreis.....	.546	Gold: 5, 10, and 20 milreis. Silver ½, 1 and 2 milreis.	
British Possessions, N. A. (except Newf'land)	Gold.....	Dollar.....	1.000		
Central Amer. States—Costa Rica.....	Gold.....	Colon.....	.465	Gold: 2, 5, 10, and 20 colons (\$9.307). Silver: 5, 10, 25 and 50 centimos.	
British Honduras.....	Gold.....	Dollar.....	1.000		
Guatemala.....	Silver.....	Peso.....	.375	Silver: peso and divisions.	
Honduras.....					
Nicaragua.....					
Salvador.....					
Chile.....	Gold.....	Peso.....	.365	Gold: escudo (\$1.825), doubloon (\$3.650), and condor (\$7.300). Silver: peso and divisions.	
China.....	Silver..	Tael.	Amoy.....	.615	
			Canton.....	.613	
			Cheefoo.....	.588	
			Chin Kiang.....	.601	
			Fuchau.....	.569	
			Haikwan.....	.626	
			(Customs)		
			Hankow.....	.575	
			Kiaochow.....	.596	
			Nankin.....	.609	
			Niuchwang.....	.577	
			Ningpo.....	.591	
			Peking.....	.599	
			Shanghai.....	.562	
			Swataw.....	.568	
			Takau.....	.619	
Colombia.....	Gold.....	Dollar	Tientsin.....	.596	
			Hongkong.....	.404	
			British.....	.404	
			Mexican.....	.407	
Denmark.....	Gold.....	Crown.....	.268	Gold: condor (\$9.647) and double condor. Silver peso.	
Ecuador.....	Gold.....	Sucre.....	.487	Gold: 10 and 20 crowns.	
Egypt.....	Gold.....	Pound (100 piasters)	4.943	Gold: 10 sucres (\$4.8665). Silver: sucre and divisions.	
Finland.....	Gold.....	Mark.....	.193	Gold pound (100 piasters). 5, 10, 20 and 50 piasters. Silver: 1, 2, 5, 10, and 20 piasters.	
France.....	Gold.....	Franc.....	.193	Gold: 20 marks (\$3.859), 10 marks (\$1.93).	
German Empire.....	Gold.....	Mark.....	.238	Gold: 5, 10, 20, 50, and 100 francs. Silver: 5 francs.	
Great Britain.....	Gold.....	Pound sterling.....	4.866½	Gold: 5, 10, and 20 marks.	
Greece.....	Gold.....	Drachma.....	.193	Gold: sovereign (pound sterling) and ½ sovereign.	
Haiti.....	Gold.....	Gourde.....	.965	Gold: 5, 10, 20, 50 and 100 drachmas. Silver: 5 drachmas.	
India [British].....	Gold.....	Pound Sterling†.....	4.866½	Gold: 1, 2, 5 and 10 gourdes. Silver: gourde and divisions.	
Italy.....	Gold.....	Lira.....	.193	Gold: sovereign (pound sterling). Silver: rupee and divisions.	
Japan.....	Gold.....	Yen.....	.498	Gold: 5, 10, 20, 50, and 100 lire. Silver: 5 lire.	
Liberia.....	Gold.....	Dollar.....	1.000	Gold: 5, 10, and 20 yen. Silver: 10, 20 and 50 sen.	
Mexico.....	Gold.....	Peso‡.....	.498	Gold: 5 and 10 pesos. Silver: dollar †† (or peso) and divisions.	
Netherlands.....	Gold.....	Florin.....	.402	Gold: 10 florins. Silver: 2½, 1 florin and divisions.	
Newfoundland.....	Gold.....	Dollar.....	1.014	Gold: 2 dollars (\$2.028).	
Norway.....	Gold.....	Crown.....	.268	Gold: 10 and 20 crowns.	
Panama.....	Gold.....	Balboa.....	1.000	Gold: 1, 2½, 5, 10, and 20 balboas. Silver: peso and divisions.	
Persia.....	Silver.....	Kran.....	.069	Gold: ½, 1, and 2 toman (\$3.409). Silver: ¼, ½, 1, 2, and 5 kran.	
Peru.....	Gold.....	Libra.....	4.866½	Gold: ½ and 1 libra. Silver: sol and divisions.	
Philippine Islands.....	Gold.....	Peso.....	.500	Silver peso: 10, 20, and 50 centavos.	
Portugal.....	Gold.....	Milreis.....	1.080	Gold: 1, 2, 5, and 10 milreis.	
Russia.....	Gold.....	Ruble.....	.515	Gold: 5, 7½, 10, and 15 rubles. Silver: 5, 10, 15, 20, 25, 50, and 100 copecks.	
Spain.....	Gold.....	Peseta.....	.193	Gold: 25 pesetas. Silver: 5 pesetas.	
Straits Settlements.....	Gold.....	Pound sterling‡.....	4.866½	Gold: sovereign (pound sterling). Silver: dollar and divisions.	
Sweden.....	Gold.....	Crown.....	.268	Gold: 10 and 20 crowns.	
Switzerland.....	Gold.....	Franc.....	.193	Gold: 5, 10, 20, 50, and 100 francs. Silver: 5 francs.	
Turkey.....	Gold.....	Piaster.....	.044	Gold: 25, 50, 100, 250, and 500 piasters.	
Uruguay.....	Gold.....	Peso.....	1.034	Gold: peso. Silver: peso and divisions.	
Venezuela.....	Gold.....	Bolivar.....	.193	Gold: 5, 10, 20, 50, and 100 bolivars. Silver: 5 bolivars.	

NOTE.—The coins of silver-standard countries are valued by their pure silver contents, at the average market price of silver for the three months preceding the date of this circular.

*Gold standard adopted December 31, 1908, 12½ bolivianos equal the pound sterling or Peruvian pound (\$4.866½).

†The sovereign is the standard coin of India, but the rupee (\$0.3244½) is the current coin, valued at 15 to the sovereign.

‡Seventy-five centigrams fine gold.

††Value in Mexico, \$0.498.

‡The current coin of the Straits Settlements is the silver dollar issued on Government account and which has been given a tentative value of \$0.567758½.

and some of the independent steel and blast furnace interests. The movement, however, did not succeed. The United States Steel Corporation is said to have definitely decided during the year that it will erect no more coke ovens in the Connellsville region, neither the beehive now used nor by-product ovens, except possibly to round out some plants already in operation.

COLGATE UNIVERSITY. An Institution of higher learning at Hamilton, N. Y., founded in 1819. There were in 1909, 330 students with 30 instructors. The library contains about 52,000 volumes. The productive funds amount to about \$1,800,000, and the total income to about \$130,000. In September, Elmer Burritt Bryan (q. v.) was inaugurated president of the University to fill the vacancy caused by the death of Rev. Dr. George Edmunds Merrill.

COLLEGES. See UNIVERSITIES AND COLLEGES, and under individual heads.

COLLEGES, AGRICULTURAL. See AGRICULTURAL EDUCATION.

COLLIER, PETER FENELON. An American publisher, died April 23, 1909. He was born in County Carlow, Ireland, in 1849. In his youth his parents removed to the United States, settling in Cincinnati, and his education was completed in St. Mary's Seminary in that city. Mr. Collier began his business career in New York City, early in the 70's, by selling books from door to door. In 1882 he secured, for a small sum, a complete set of the plates of Dickens's works. He bought a printing press, hired a small loft, and began the publishing business which, in a few years, became very successful. The firm of P. F. Collier & Son published and sold millions of books, chiefly standard works in inexpensive form. He founded, in 1888, *Collier's Weekly*, and this, too, was successful. In 1905 Mr. Collier came prominently before the public as a result of attacks in the *Weekly* against a well-known "society" periodical. He and his son were arrested on a charge of criminal libel brought by the editor of this journal, but the charge was not proved. He retired from active business about fifteen years before his death. He was well known as a sportsman and breeder of horses.

COLOMBIA. A republic of northwestern South America. The capital is Bogotá.

AREA AND POPULATION. The area is variously estimated at from 435,100 to 465,700 square miles. In 1908 a redivision of the country was adopted, whereby 27 departments and two territories were erected. The estimated population in that year was 4,303,000, exclusive of about 30,000 uncivilized Indians. The estimated population of Bogotá is 100,000; the principal commercial towns, with estimated number of inhabitants, are: Medellín, 60,000; Barranquilla, 42,000; Bucaramanga, 25,000; Cartagena, 14,000; Cúcuta, 10,000. Primary instruction is free, but not compulsory, and is largely maintained by the state. Nearly all schools of secondary education, though maintained or assisted by the government, are under the management of the Roman Catholic Church, the established church of the state. There are several normal schools and a few institutions for higher or technical instruction. The reported number of pupils in public schools in 1908 was 236,985.

AGRICULTURE. Agriculture and mining are

the chief industries, but the progress of both is retarded by difficulties with respect to labor and transportation. Though much of the soil is fertile, only a small part of the country is under cultivation. The products include bananas and other tropical fruits, coffee, cocoa, sugarcane, cotton, corn, rubber, and, on the uplands and mountains, wheat, barley, and various other crops of the temperate zone. Coffee is the staple product, yielding annually about 600,000 bags, but coffee-planting has been much overdone, and the cultivation of bananas, wheat and corn is regarded as more desirable at the present time. In the last half dozen years banana culture has rapidly extended. Large portions of the country are excellently adapted to the raising of live-stock. The estimated number of cattle in 1909 was 4,000,000; besides, there are numerous sheep, goats, and swine. The cattle slaughtered in 1907 numbered 341,528.

MINING. The mineral wealth of Colombia, and especially of the Department of Antioquia, is very great. The leading metal is gold, which is found throughout the country. Antioquia has been called one immense gold field, but mining in large part is still carried on by primitive methods. The average annual output of gold and silver in Colombia is about \$4,000,000. The country is also rich in emeralds, copper, lead, mercury, iron, zinc, platinum, cinnabar, antimony, sulphur, and salt. There are immense petroleum districts, and coal measures are extensive, but very little worked. The famous emerald mines of Muzo and Cosquez are owned by the government. In the spring of 1909 the Muzo mines were leased to an English syndicate for a period of twenty years. The syndicate agreed to sell at least \$1,250,000 worth of emeralds a year.

MANUFACTURES. Manufacturing industries have not yet attained any considerable importance; but in some of the larger towns there are establishments for the manufacture of various articles of common use, as cotton cloth, shoes, hosiery, matches, sugar, liquors, and brick. In Barranquilla and vicinity the flour-milling industry has begun to assume promising proportions.

COMMERCE. The gold values of imports and exports have been as follows:

	1906	1907	1908
Imports.....	\$9,353,345	\$12,088,563	\$13,513,892
Exports.....	14,834,815	13,791,442	14,995,744

At the most important custom houses, imports and exports were in 1908, respectively: Barranquilla, \$8,219,126 and \$6,904,964; Cartagena, \$2,542,650 and \$4,280,565; Buenaventura, \$1,340,322 and \$843,166; Tumaco, \$828,177 and \$1,026,191; Santa Marta, \$185,890 and \$923,306; Cúcuta, \$281,014 and \$724,678. The leading imports are flour, lard, sugar, rice, potatoes, cotton goods, and petroleum. The chief exports are gold, coffee, cattle, bananas, rubber, hides, tobacco, lumber, and ivory nuts. The banana export, notably from Santa Marta, increased from 787,244 bunches in 1904 to 2,241,580 bunches in 1908. The foreign trade is principally with the United States, Germany, and Great Britain. Of the coffee export about 67 per cent. goes to the United States, most of the tobacco to Germany, and the cotton to Liverpool or Havre. According to American fig-

ures, the imports from the United States to Colombia in 1908 amounted to \$3,690,014, and the exports to the United States, \$6,897,493, representing gains of over \$500,000 and \$400,000 respectively.

COMMUNICATIONS. Railways open to traffic in 1908 aggregated 461 miles, and since that time a considerable mileage has been finished. It was reported in 1909 that never before had Colombia given so much attention to the development and extension of railways and wagon roads. Nevertheless many years will doubtless elapse before transportation facilities will be adequate to the needs of the country. In February, 1909, the Girardot Railway joined the Sabana Railway at Facativá, thus connecting Bogotá with Girardot, on the Magdalena River; from Girardot there is steamboat communication with the port of Barranquilla, at the mouth of the river. An important line under construction is the Pacific Railway, which, by July, 1910, it is expected will connect the port of Buenaventura with Cali, whence it will be continued to Palmira, thus opening up the fertile valley of Cauca. Much traffic is carried on by river steamboats. In 1908 there were 10,354 miles of telegraph line.

FINANCE. In 1907 the revenue was \$16,053,751, and the expenditures \$15,992,863. For 1908 revenue and expenditure were reported to balance at \$17,223,818. The chief sources of revenue reported for the latter year were: Customs duties (almost wholly on imports), \$6,500,000; tax on liquors, \$2,100,000; tax on slaughterhouses and hides, \$1,450,000; salt monopoly, \$1,100,000. The principal expenditures were for: Department of Finance, \$6,962,853; Department of War, \$2,731,151; public works, \$2,288,485; ports and telegraphs, \$1,337,714; public instruction, \$767,556. Estimated revenue and expenditure for 1909 were \$16,000,000 and \$14,000,000 respectively. In 1907 the consolidated internal debt (owed to various religious schools and other institutions) was 5,476,888 dollars (silver); in 1908 the floating internal debt was \$3,063,012 (exclusive of interest guaranteed by the government on bonds and debentures, aggregating \$2,915,000). Neither the consolidated nor the internal debt includes the national paper currency. The external debt, due mostly to British creditors, is stated at \$13,500,000. To this sum must be added \$526,500 arrears of interest and Sabana Railway bonds, amounting to \$935,600. The monetary unit is the gold dollar, of the value of the United States dollar. The outstanding issue of paper amounts probably to more than 700,000,000 pesos. The value of the paper peso in business transactions fluctuates, but is fixed legally at one cent gold.

ARMY AND NAVY. Every able-bodied citizen is liable for service in the national army whose strength is fixed annually by act of Congress. In 1909 (April 1), the peace effective was 6528 men, of which 28 were generals, 45 field or higher officers, 283 subalterns, 159 civil employees, 218 musicians, and about 5000 rank and file. In July, 1907, there was founded at Bogotá a military school with a cadet battalion and cadet battery. The war effective strength of men but partially trained was about 60,000.

The effective navy includes one cruiser and three gunboats.

GOVERNMENT. The executive authority is vested in a president, and the legislative in a

bicameral representative congress. In 1904 General Rafael Reyes was elected President for the constitutional term of four years. But in the following year, by a Congressional resolution, his term of office was extended to ten years, dating from January 1, 1905. In the summer of 1909 General Reyes left the country. (See below.)

HISTORY. In January the treaty which for some time past had been under negotiation between the United States, Panama and Colombia was signed. It secured the recognition of Panama's independence and the adjustment of its boundaries, and bound the United States to pay Colombia \$2,500,000 on the canal concessions. As a result of the Congressional elections held in June, General Rafael Reyes was chosen President. But on July 4 part of the army at Barranquilla, which had risen against the government, seized the municipal authorities, declared Señor Gonzales Valencia President, drove out the police, took possession of the town and captured several steamers on the Magdalena River. A force of 3000 men and six steamers were soon ready to move against them and the revolt was suppressed without difficulty. General Reyes resigned the presidency, assigning as his main reason the opposition in Congress to that portion of the treaty with Panama and the United States which exonerated those countries from injustice to Colombia in the matter of the Panama revolution. He was succeeded by Señor Valencia, who recommended the reference to The Hague of this question and the question as to indemnity for alienation of Colombian territory. The dispute, which for a long time had been going on between Venezuela and Colombia, was settled during the year, and a Colombian representative was sent to Caracas for the first time since the beginning of the Castro administration.

COLORADO. One of the Western Division of the United States. Its total area is 103,658 square miles of land surface and 290 square miles of water surface, or a total of 103,948 square miles. The population in 1900 was 539,700. The population in 1909, according to a Federal estimate made in that year, was 653,506. The capital is Denver.

MINERAL PRODUCTION. The mining of metals is the principal industry of the State. The aggregate value of the mineral production, according to the figures given by the United States Geological Survey in 1908, was \$58,629,487, which was a marked decrease from the value of the product of 1907, which was \$71,105,128. The decrease was in mineral products other than gold. The latter showed a substantial increase over the product of 1907. The product of gold in 1908 was 1,106,385 fine ounces, valued at \$22,871,000, as compared with 1,010,921 fine ounces, valued at \$20,897,600 in 1907. Silver showed a decrease both in the quantity mined and in the value of the product from the value and production of 1907. The comparative figures were as follows: 1908, 10,150,200 fine ounces, valued at \$5,429,400; 1907, 11,495,400 fine ounces, valued at \$7,587,000. On account of the low prices of the metal prevailing during the latter part of 1907 and throughout 1908, the operations of the silver, lead, and zinc mines were greatly curtailed. The production of copper in 1908 remained substantially the same as that in 1907, although the value materially decreased. The respective figures are:

1908, 13,943,878 pounds, valued at \$1,840,592; 1907, 13,998,496 pounds, valued at \$2,799,699. For the second time in a period of fifteen years the coal production of the State showed a decrease as compared with the output of the preceding year. In 1904 the coal-mining industry of the State was seriously affected by labor disturbances, and the production was materially decreased. The trade depression and the stringency in the money market were manifested in Colorado by a decrease in the coal production, which amounted to 1,155,263 short tons as compared with the production of 1907. The comparative figures for the two years were as follows: 1908, 9,634,973 short tons, valued at \$13,586,988; 1907, 10,790,236 short tons, valued at \$15,079,449. The decrease was brought about largely by the shutting down of many of the fuel-consuming industries of Colorado and adjoining States during the year. In addition to this the winter of 1907-8 was exceptionally mild, and as a result of these conditions, many of the coal mines of the State suspended operations, and some did not resume business until late in the fall of 1908. The total number of men employed in the coal mines of the State during the year was 14,523, as compared with 14,223 in 1907. There were 61 killed and 115 injured in the coal mines of the State during the year, as compared with 99 killed and 138 injured in 1907. On account of the unfavorable trade conditions little work in the way of new development in the Colorado coal fields was done in 1908, except the continuation of construction of the Denver, Northwestern and Pacific Railroad from Denver into Routt county, where large quantities of high grade coal are known to exist. The coke production in 1908 amounted to 982,291 short tons, a considerable decrease over the product of 1907, which was 1,421,579 short tons. This includes the product of Utah, which is, however, inconsiderable. The number of establishments in the two States during 1908 remained the same as during 1907, 18. Other leading mineral products are clay products, lead, stone, and mineral waters. A large quantity of zinc is also produced. In 1908 this product was valued at \$2,339,190, as compared with a value of the product in 1907 of \$3,077,086.

The production of gold in 1909 was estimated by the Director of the Mint at 106,305 fine ounces, with a value of \$21,954,700. This is a decrease of \$916,300 in value from the production of 1908. The production of silver was 9,093,600 fine ounces, valued at \$4,730,100.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal crops in the State in 1909, according to the figures of the United States Department of Agriculture, were as follows: Corn, 3,267,000 bushels, valued at \$2,287,000, from 135,000 acres; winter wheat, 2,673,000 bushels, valued at \$2,486,000, from 90,000 acres; spring wheat, 8,085,000, valued at \$7,519,000, from 275,000 acres; oats, 7,448,000, valued at \$3,947,000, from 196,000 acres; barley, 936,000, valued at \$618,000, from 26,000 acres; rye, 88,000 bushels, valued at \$64,000, from 4000 acres; potatoes, 10,400,000 bushels, valued at \$5,928,000, from 65,000 acres; hay, 1,760,000 tons, valued at \$17,600,000, from 704,000 acres. There has been a general decrease since 1900 in the acreage of hay, but the crop of 1909 was slightly more than that of 1908, which was 1,675,000

tons. The acreage increased from 600,000 in 1908 to 704,000 in 1909. Hay is the most important product in point of value in the State. The acreage of oats and potatoes has increased in recent years. The potato crop of 1909 was over 3,000,000 bushels larger than that of 1908, which was 7,000,000 bushels, while the acreage increased from 56,000 acres in 1908 to 65,000 acres in 1909. The oats crop remained about the same, with a slightly increased production in 1909. The State ranks first in the production of beet sugar. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 280,000; milch cows, 161,000; other cattle, 1,425,000; sheep, 1,729,000; swine, 248,000. The wool clipped in 1909 was 8,000,400 pounds.

EDUCATION. According to the report of the Superintendent of Public Instruction for the years 1907-8, the school population of the State between the ages of 6 and 21 for 1908 was 207,573. Of these 105,140 were male and 102,433 were female. The total number enrolled in the public schools was 160,264, of whom 80,201 were males and 80,067 were females. There were enrolled in the high schools of the State in the same year 12,318. In the rural schools there were 2057 teachers, of whom 1776 were female and 281 were male. In the graded schools there were 3234 teachers, of whom 2719 were female and 515 were male. The average monthly salary in the rural schools for male teachers was \$56.80 and for females \$51.57. In the graded schools the average salary for male teachers was \$92.95 and for females \$65.35. The total amount expended for teachers' salaries during the year was \$2,846,329.

FINANCE. The balance at the end of the fiscal year 1908 was \$2,820,269. The income for the fiscal year 1909 was \$3,054,562. The expenditures for the fiscal year 1909 were \$2,750,151, leaving a balance of \$3,124,580. The chief sources of revenue are from the insurance department, from liquor licenses, fees of the Secretary of State, and from State taxes. The chief disbursements are for the support of the State government and State institutions. The bonded debt at the end of the fiscal year 1909 was \$393,500.

CHARITIES AND CORRECTIONS. The institutions under control of the State, with their populations in 1909, were as follows: Insane Asylum, Pueblo, 902; State Home for Dependent and Neglected Children, Denver, 157; Soldiers' and Sailors' Home, Montevista, 337; State Industrial School for Boys, Golden, 362; State Penitentiary, Cañon City, 701; State Reformatory, Buena Vista, 159. There were also workshops for the adult blind at Denver, a State home and training school for mental defectives at Denver and an industrial school for girls at Morrison. A bill prepared by Judge Ben B. Lindsey was passed by the legislature, providing that delinquent children shall come under the chancery powers of the courts of record. The bill provides for a referee to be called the Master of Discipline to hear cases of persons causing, encouraging or contributing to delinquency or dependency, when it is practicable to try the same before the chancery side of the court. This eliminates to a certain extent the necessity of accustoming a large portion of those having to do with children to the hardening effects of a criminal court and its surroundings. Bills were also passed to

supplement and strengthen existing acts punishing those charged with juvenile delinquency. A bill for the better inspection of factories was also passed. This act requires the better guarding of machinery and the installation of safety appliances. An act was passed for the prevention of the coercion of prisoners for the purpose of obtaining confession. A bill actively supported by Judge Lindsey was passed, intended to assist persons drifting into crime. It creates a probation court wherein it shall be lawful for the judge of the court to hear evidence in relation to all matters properly put before it, to fix the amount of damage committed by the person charged with the offense and, with the consent of the person in whose interest the proceedings were begun, to order reparation to be made by him to the person suffering such damage by return of the property taken or payment of the damage done. The court may impose such conditions on guilty defendants as the case may justify. A bill for the registration of all hospitals, dispensaries and other institutions for the care of the sick or injured and also to prevent the improper disposition of children was also passed.

POLITICS AND GOVERNMENT. On January 12 John F. Shafroth was inaugurated Governor of the State. In his inaugural address he recommended the enactment of a direct primary law fashioned after that in force in Wisconsin, and urged some provision whereby legislative candidates would pledge themselves to abide by the result of a popular vote for United States Senator. He indorsed the ballot reforms which would make impossible the voting of a straight ticket by making a single mark and declared that individuals as well as corporations should be prohibited from contributing to campaign funds. The necessary expenses, he said, should be met by the candidates themselves and by State taxation. He indorsed the guarantee of bank deposits and the initiative and referendum. The Governor condemned the national policy as to forest reserves and claimed that large tracts were unnecessarily set aside in Colorado. Only one of his recommendations was adopted by the legislature, that providing for party campaign expenses to be paid from the treasury. On January 20 the House and Senate in joint session elected Charles J. Hughes, Jr., to the United States Senate to succeed Henry M. Teller. Mr. Hughes had already been chosen as a candidate in the primaries. In the State elections held on April 6 the Anti-Saloon party was largely successful outside of Denver. Colorado Springs on May 15 adopted the commission form of government under a charter which provides for the recall, the initiative and referendum. In August the first election was held under this form of government and the results were in general satisfactory. The municipal government is lodged in a board of five commissioners. In November Grand Junction also adopted the commission form of government with a "preferential choice" form of ballot.

On May 30 five prominent citizens of Denver were indicted on the charge of conspiracy to defraud the government of coal lands said to be valued at \$1,000,000.

The State Auditor took the unique measure in July of docking the salary of Governor Shafroth for a certain number of days on

which he was absent from the State receiving a degree at the University of Michigan. The policy of the State Auditor is to curtail the salary of any State official when the latter is not on hand to transact business. In addition to docking salaries he attempted the collection of expense money received from the State by former officials. He declared that \$150,000 is due from these sources, and requested the Attorney-General to collect it. The Auditor also withheld the salaries of State appointive officers not appointed under the civil service rules. The Attorney-General of the State has held that the Governor is entitled to his salary in his absence from the State unless the Lieutenant-Governor is called upon to perform the duties of his office. On August 30, Judge Lewis in the Federal court at Denver held valid the flat tax of \$2 per year for every thousand dollars of capital stock of foreign corporations imposed by the State. In this connection he sustained the demurrer of former Secretary of State O'Connor to the complaint of the Atchison, Topeka and Santa Fe Railroad that the tax was an interference with interstate commerce. The Santa Fe had paid tax of \$8000 to the Secretary of State under protest. The road sued to recover this amount and the decision of Judge Lewis was the outcome.

OTHER EVENTS. President Taft visited Colorado in the course of his tour through the West and on September 28 he opened the Gunnison irrigating tunnel, the largest single irrigation project ever undertaken by the United States government. The tunnel was driven from two points, six miles apart, one on the Gunnison River, whence the water supply came, and the other at Montrose in the Uncompahgre Valley, on the other side of the range. The cost down to the close of the year was about \$3,500,000. Through this tunnel water will be carried to irrigate from 150,000 to 175,000 acres of land. This land is free, but to prevent speculation only forty acres will be allowed to each homesteader. The South distributing canal was also completed and the East and West canals are under construction and will be finished in 1910. See IRRIGATION.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: Acts regulating the practice of architects and the business of barbers; for the inspection of factories, the erection of county high schools districts and the physical examination of school children. See above paragraphs, *Charities and Corrections*.

OFFICERS. Governor, John H. Shafroth; Lieutenant-Governor, Stephen R. Fitzgarrald; Secretary of State, James B. Pearce; Treasurer, William J. Galligan; Auditor, Rody Kenahan; Bank Commissioner, Emil W. Pfeiffe; Attorney-General, John T. Barnett; Superintendent of Public Instruction, Katherine M. Cook; Commissioner of Insurance, William L. Clayton—all Democrats.

Judiciary: Supreme Court—Chief Justice, Robert W. Steele, Democrat; Justices, John Campbell, Republican; S. H. White, Democrat; W. A. Hill, Democrat; M. S. Bailey, Democrat; William H. Gabbert, Republican; G. W. Musser, Democrat; Clerk, James R. Killian, Democrat.

The State Legislature of 1909 was composed of 20 Democrats and 15 Republicans in the

Senate, and 53 Democrats and 12 Republicans in the House. The State Representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

COLORADO SPRINGS, COLO. See **ELECTORAL REFORM.**

COLORAD METHODISTS. The Colored Methodists of the United States include those in direct affiliation with the Methodist Episcopal Church and those in independent denominations. Of the latter the most important are the African Methodist Episcopal Church, which had in 1906, the latest year for which statistics are available, 858,323 members, and the African Methodist Episcopal Zion Church, which had in 1908 583,106 members, 3280 churches and 3986 ministers. The Colored Methodist Episcopal Church had a membership in 1909 of 233,911, with 2809 churches and 2893 ministers. Among the Colored Methodist denominations of smaller membership are the Reformed Methodist Union Episcopal Church, with about 5000 members; the Union American Methodist Episcopal Church, with about 18,500 members; the African Union Methodist Protestant Church, with about 4000 members, and the Zion Union Apostolic Church, with about 3000 members.

COLSON, JAMES MAJOR. An American (Negro) educator, died May 22, 1909. He was born in Petersburg, Va., in 1854, and was educated at Dartmouth College. He was appointed to a position in the United States Internal Revenue Office in Petersburg, but resigned to become a teacher in the Virginia Normal and Collegiate Institute. There he remained as professor of natural science for twenty-one years. In 1904 he became principal of the Dinwiddie Agricultural and Industrial Institute. Professor Colson was one of the most prominent Negro educators in the South.

COLUMBIA, BRITISH. See **BRITISH COLUMBIA.**

COLUMBIA, DISTRICT OF. See **DISTRICT OF COLUMBIA.**

COLUMBIA UNIVERSITY. An institution of higher learning in New York City, founded in 1754. The attendance in 1909-10 was 6145 (including 1971 summer session students, but excluding 1633 students in extension teaching). These students were distributed as follows: 635 in Columbia College; 513 in Barnard College; 988 non-professional graduate students and 2525 professional students in education, applied science, medicine, law, pharmacy, and fine arts. In 1908-9 all parts of the United States and thirty-five foreign countries were represented in the student body, the graduate students representing 313 other colleges and universities. During 1908-9 Columbia received money gifts of \$498,002.07. Teachers' College received \$463,898.56, and Barnard College, \$13,314.06, a total of \$1,074,637.07. Between 1901 and 1909 the several corporations of the University received a total of \$11,023,511.66 in money gifts. The total assets in 1909 were \$14,137,843.86, in educational equipment, and \$26,704,539.27 in endowment. The library contained 435,000 bound volumes. The total income for 1908-9 (including Barnard College, Teachers' College, and the College of Pharmacy), was \$2,207,501.18. The estimated expenditure for 1909-10 was \$2,505,835.79. In 1909-10 the teaching and adminis-

trative staff of the University numbered 725 persons. Dr. Nicholas Murray Butler is president. At the commencement of 1909, 1242 degrees and diplomas were granted.

For the past decade the University has been enabled to do comparatively little in the development of new fields. The gifts made in that period, generous though they have been—more than \$12,000,000—have of necessity been used largely in the development of the Morningside site, what was left barely serving to enable the institution to keep pace with the growing registration under all its faculties. The splendid bequest of John S. Kennedy, which will amount probably to nearly \$3,000,000, will give an opportunity which the University gladly welcomes. Courses are being formulated in sanitary science, preventive medicine, forest engineering, and agriculture.

Columbia has, in the past year, been strengthening the ties between it and the public and private institutions of the city. An officer of professorial grade has been appointed as chairman of the Undergraduate Admissions Committee, with the intention of building up closer relations with the members of secondary schools. Arrangements have been made with several of the city hospitals whereby senior medical students are enabled to gain practical experience as clinical clerks. The informal coöperative relations with the Union Theological Seminary, which is moving to a site contiguous to the University, have been greatly strengthened. The opportunities open to students in all the professorial courses are being extended as rapidly as possible by bringing them into direct contact with experts—alumni and others—in the professional field which they purpose to enter.

COMETS. See **ASTRONOMY.**

COMORO ISLANDS. See **MAZOTTE.**

CONCERTS. See **MUSIC.**

CONCRETE. With increased demand for fireproof building and economical construction, concrete continued in 1909 as in the year previous to find increased application. In every branch of structural engineering concrete is employed, so that its use has long ceased to be novel, and as a structural material it must be considered as brick, masonry, steel or timber. It may, however, supplant for different purposes and often with advantage any or all of these materials. While no such immense structure as the Henry Hudson Memorial Bridge at Spuyten Duyvil, New York City, a reinforced concrete arch structure of 1710 feet span, planned in 1907, was proposed in 1909, yet there were a number of reinforced concrete bridges constructed (see **BRIDGES**) and for much bridge work reinforced concrete had become standard practice. Concrete grain elevators were successfully constructed during the year, and two large six-story warehouses, costing \$300,000, were building at South Brooklyn, New York, for the Bush Warehouse Co. These were 600 x 75 feet and were of considerable strength. Factories, warehouses and other buildings, the construction of many types of which had become standardized, increased, and there was a proportionately increased demand for Portland cement. The use of cement in mines for timbering became more prominent and was found most advantageous. Even an organ was built with concrete pipes and cham-

bers and there was apparently no end to the diversity of its application. While there were the usual engineering investigations and discussions of method and strength, most interesting perhaps was the part played in the campaign for fireproof construction and for economical yet spacious buildings in large cities. This question of buildings of reinforced concrete figured very prominently in the new building code of New York City, passed by the Board of Aldermen and submitted to the Mayor, by whom it was rejected. This code was prepared by the majority members of a commission and contained provisions limiting the height of reinforced concrete buildings to 85 feet, prohibiting the use of concrete made with cinders as a fireproof material, and restricting the use of reinforced concrete walls for elevator shafts. The proposed code was vigorously assailed by the concrete interests and defended by the makers of hollow tile fireproofing. The controversy was very bitter and charges and recriminations, both vague and specific, were uttered. Mayor McClellan vetoed the code, citing among other objections those made to its concrete provisions. He stated that the Board of Fire Underwriters regarded 100 feet as a reasonable limitation in height and quoted Professor William H. Burr as saying that there should be no limitation whatsoever on reinforced concrete construction, there being several buildings higher than 100 feet in New York City which had proved successful notwithstanding severe strains, such as the reciprocating action of printing presses. In regard to cinder concrete Mayor McClellan spoke of the controversy and suggested that further tests should be made by the chief engineer of the Board of Estimate and Apportionment. The hearings before the Mayor brought out a very strong presentation of the claims of reinforced concrete construction, and its value, not only for its strength, but for its fire-resisting properties, was testified to by examples of existing structures in New York City and elsewhere, and by the record of buildings which had successfully resisted fire, not to mention tests made by the United States Geological Survey and various engineering organizations and laboratories.

A severe and practical test of the fireproof qualities of a reinforced concrete factory occurred in a fire at a glue works at Frankford, Philadelphia. The fire to which the building was subjected was so hot as to melt the wire glass window frames in their sashes, which at the time of the fire happened to be open. The building was constructed entirely of reinforced concrete, and not only resisted the fire, but protected an adjoining building. Tests of the fire-resisting properties of concrete blocks in connection with other building materials were made under the direction of Richard L. Humphrey of the United States Geological Survey and were published during the year in *Bulletin No. 370*. It was found that concrete shared with brick preëminence as a fire-resisting material, and of course possessed advantages in the way of economy and ease of application in building. It was also found that concrete blocks perfectly fire-resisting could be made which would withstand the disintegrating effects of fire and water.

An interesting example of the change in the price and availability of materials was shown

in the fact that Mineville, N. Y., a small mining community near the Adirondack Mountains, was rebuilt, and in place of timber concrete was used, not only for the principal buildings, but in the construction of fifty workmen's cottages. The company owning and operating the mines, it may be said, also owned thousands of acres of timber land, so that its choice of concrete was significant. The first cost of workmen's cottages was about the same as that of timber, but their maintenance was vastly less. The houses were very attractive and were found warm and comfortable even in an Adirondack winter.

Concrete railway ties were laid for test in the South and West, and results in the main were satisfactory, though no extended movement for their adoption was manifested. A report of an inspection made in the summer of 1909 of the behavior of 100 ties installed in 1906 near Edgewater, Texas, on the main line of the Galveston branch of the Galveston, Harrisburg and San Antonio Railroad was published during the year. These were found to be in most satisfactory condition, there being no failures where fifty of the ties were installed together "out of face," and only seven showed traces of cracking among fifty interspersed with cypress ties, many of which decayed and required to be replaced, their renewal throwing extra load on the concrete ties.

Concrete telegraph and telephone poles were finding increased application, particularly as the increased prices of timber were taken into consideration. When it is realized that the renewals of wood telephone and telegraph poles alone involve an annual expense of \$13,000,000 and that iron poles represent considerable outlay, the availability of concrete poles, with their long life and the little care involved in their maintenance, will be evident. Up to 35 feet in length a concrete pole can be cast horizontally, and then set in the usual manner, but for taller poles temporary moulds are set up and the pole carrying a reinforcement of steel rods is cast in position. One of these poles 7 inches square at the top and 12 inches square at the ground, 30 feet in height and planted 5 feet in the ground was tested to destruction. No cracking was noticed until the force of the pull was increased to 2800 pounds, and bad cracking sufficient to produce failure did not result until 7200 pounds was applied. With a cedar pole a pull of 840 pounds deflected it at the top 11 inches as compared with 6 inches for the concrete pole, while at 2200 pounds it was broken off about a yard from the ground.

CONGO, BELGIAN. A Belgian colony in Central Africa, formerly the Congo Free State, under the sovereignty of the King of the Belgians, annexed to Belgium by treaty of November 28, 1907, which was approved by the Belgian Parliament in August, 1908, and by the King on October 18 following. The capital is Boma (population, 3300), and the chief port Banana, at the mouth of the Congo. The estimated area is about 920,000 square miles. The population, which is of Bantu origin, is officially estimated at 20,000,000; other estimates are 9,000,000 and 15,500,000. In January, 1908, the white inhabitants numbered 2943. Gross fetishism is practiced by the natives, but mission work is carried on. The reported number of mission stations is 138, with 571

missionaries, of whom 350 are Catholic and 221 Protestant. Three colonies for agricultural instruction are maintained by the government.

PRODUCTION AND COMMERCE. The soil of Belgian Congo is divided into native lands, private estates of non-natives, and Crown lands. The leading commercial product is rubber; other products of importance are ivory, palm-nuts, palm-oil, coffee, cacao, bananas, tobacco, and white copal. Rubber and coffee plantations have been established by the government. In 1907 imports and exports were valued at 25,182,000 francs and 58,895,000 francs respectively; in 1908, 32,561,300 francs and 57,383,100 francs respectively. The principal imports are textiles, foodstuffs, beverages, and machinery and metal manufactures. Rubber is the chief export, being valued at 43,983,000 francs in 1907. The trade is mainly with Belgium.

COMMUNICATIONS. For about 100 miles from its mouth to Matadi the Congo is navigable, and eleven state steamers ply thereon. Thence a railway about 250 miles long extends to Stanley Pool, above which the river, exclusive of its great tributaries, is navigable for some 1200 miles. A Belgian company has a concession to build about 900 miles of railway connecting the Congo at Stanleyville and Nyangwe with Albert Nyanza and Lake Tanganyika, and a considerable mileage is already in operation. The Katanga Railway Co. has undertaken to build a line from Mabaya, on the Congo frontier, to the Star of the Congo copper mine (60 miles) upon the arrival of the Rhodesian railway to Mabaya from Broken Hill; thence the Belgian company is to continue the line eventually to the Ruwe copper district (170 miles further) and to the navigable Lualaba. A local railway in Mayumbe is in operation for 50 miles. In 1907 the post-offices numbered 25. There are about 1100 miles of telegraph line.

ARMY, NAVY, ETC. The native armed force in 1909 was divided into 23 independent companies of infantry under European officers, and amounted to 13,886 men, exclusive of European officers and members of the skeleton organization, in whose numbers were included 141 officers and 184 non-commissioned officers. There was also a reserve corps and four camps of instruction. Recruitment is by conscription and the contingent for 1909 was fixed at 2200. The time of service is seven years. There is an annual draft in the conscription to the construction of public works and a "second section," amounting to about 2500 men, are taken for this purpose.

GOVERNMENT, ETC. The legislative power is exercised by the King through decrees proposed by the Minister for the Colonies. The latter, who is a member of the Council of Ministers and president of the Colonial Council, is appointed by the King and is responsible to the Parliament. At Boma the King is represented by a governor-general (Baron Wahis in 1909) who is assisted by several vice-governors-general. For administrative purposes the colony is divided into fourteen districts, a commissioner being at the head of each. Revenue and expenditure in 1906 amounted to 34,623,782 francs and 28,847,281 francs respectively; in addition, however, there are reported extraordinary revenue of 32,876,465 francs and extraordinary expenditure of 38,

233,133 francs. According to the revised budget of 1907, the revenue and expenditure stood at 40,895,299 francs and 40,191,797 francs respectively. For 1909 revenue was estimated at 36,094,036 francs, and expenditures 44,517,336 francs. The chief items of revenue were: Taxes in kind, 16,881,825 francs; customs, 7,200,000; transports, etc., 5,723,211. The public debt amounts to 117,974,000 francs. There is a native armed force (infantry) of about 15,000 men, whose commissioned officers are almost entirely Belgians. Recruitment is by conscription and to some extent volunteering, the annual contingent being about 2000 men. The term of service is five years in the ranks and two in the reserve. In addition to the soldiers, men are conscripted to serve as artisans in the construction of public works; these number about 2550.

HISTORY

CRITICISMS OF CONGO ADMINISTRATION. The chief events in the recent history of the Congo were the annexation of the state to Belgium by the treaty of October 18, 1908, and the passage in that year of the Colonial act arranging for the new administration. For several years past the alleged abuses in the Congo administration had occasioned continued criticism in foreign countries and protests from the governments of Great Britain and the United States. No guarantees were given on the occasion of the transfer of Congo sovereignty to Belgium in 1908 that the changes desired by the critics of the Congo administration and discussed in diplomatic correspondence by the United States and Great Britain would be introduced. In 1909 there was no improvement in the situation. In January, Germany and France formally recognized the annexation, but the United States and Great Britain still held back. Complaints continued that forced labor was still systematically employed and diplomatic correspondence was carried on at intervals without avail. In a British government publication issued January 29 the British consul at Boma drew attention to the oppressive and unfair system of taxation, charged one of the companies with total disregard of the regulations against wasting rubber resources and for the protection of the natives, and charged the government authorities with either blindness or actual connivance. Another consul declared the state of the natives under the concessionary companies to be no better than slavery and the outlook under present conditions hopeless. Both the American and the British governments gave it to be understood that they would not recognize annexation until they received more satisfactory assurances of reform. A dispatch from the United States Secretary of State early in February, acknowledging the receipt of the Belgian notice of annexation, emphasized the need of certain radical administrative changes. In the same month the Congo Reform Association submitted to Sir Edward Grey a report of the Rev. John Whitehead alleging cruelty to the natives and raids on their villages in punishment of their failure to bring products to the state stations, and complaining that in violation of the Berlin act the authorities were blocking all the educational efforts of the missionaries. On February 26 and on March 4 Sir Edward Grey again referred to his government's demand for

radical reforms and the fulfillment of treaty rights. In France an association has been formed for the reform of the Congo, and an International League was organized to cooperate with the French League for the defence of the Congo natives. Their joint policy was defined as follows: To work for the abolition of forced with the French League for the defense of the natives to trade freely in what they produce, to restore to the natives the land belonging to them that had been assumed by the state, to insist that the state shall protect native rights and customs and exploit vacant lands only in the interest of the natives, and to teach European nations the duty of developing native prosperity in the Congo.

In the Belgian Chamber the government was interpellated by two Socialist Deputies in regard to the decree authorizing forced labor on the Great Lakes Railway (see BELGIUM, paragraphs on *History*) and other public works, and a debate resulted (March 16). It was charged that under present conditions laborers were torn from their homes for a period of five years under threats of punishment, and it was asked why free labor was not established. To this the Colonial Minister replied that he had not violated the Colonial Charter, that the railway works were urgent and that the natives would benefit from them, and that conditions had improved in general; but he did not deny that the natives were still chained and that the chicote was still used. M. Vandervelde, one of the Deputies who interpellated the government on this occasion, referred to the sufferings he himself had seen during a recent visit to the Congo. At Welle, where the work on the Great Lakes Railway was going on, the natives were drafted from points at a distance of thirty days' journey. In a later debate the Ministry was accused of violating its promises, and it was demanded that the use of chains and the chicote should cease and that what practically amounted to a system of slavery should be abolished. The Ministry replied that forced labor was a characteristic of all colonies and was to be found on the railways of Lagos, Uganda, and Sierra Leone; that while the Congo administration was not ideal, it was the best possible under the circumstances. Forced labor, they declared, would eventually be abolished, but at present railway construction must be hastened. The Opposition urged the repeal of the decree authorizing forced labor issued on January 6. Later, the resolution passed the Chamber and was accepted by the Minister for the Colonies. It urged the substitution of free recruiting for recruiting on account of public utility in the construction of the Great Lakes Railway. It declared that improvements might be made in the condition of the laborer by reducing their length of service, limiting the recruiting zone, assuring equal pay and a proper local proportion of recruited labor to the free labor in the same region.

In a letter addressed to Sir Edward Grey, the secretary of the Congo Reform Association argued that if Belgium had kept its pledge the rubber output would have fallen to one-fourth of what it had been, whereas it promised to be nearly as large as before. This was offered as a proof that forced labor was still practiced. In the summer the official correspond-

ence between the British and Belgian governments and between the United States and Belgium was published. It contained the familiar complaints of the British and American governments as to disregard of native rights and the continuance of forced labor. The American Secretary of State insisted on the fulfillment of international obligations, with which he declared the system of forced labor to be incompatible. To this the Belgian government replied that international obligations were not disregarded, but that they could not all survive the annexation of the Congo by Belgium. As to concessionary rights Belgium declared that foreigners could still purchase all the land they wished and that the concessions did not debar the government from selling vacant lands in the concession districts. The United States government, it declared, misunderstood the situation, having confounded the particular territory of the tribes with the lands owned collectively by the tribesmen. Sir Edward Grey referred to the Congo Reform Association as an independent society, expressing strong popular feeling on the subject, which would endure until the reforms were assured. On March 15 Sir Edward Grey received the reply of the Belgian government, which, he said, was satisfactory in its general assurances, but not specific as to its measures of reform. The British reply on June 11 declared that Great Britain could not recognize the annexation till the abuses of taxation and forced labor had ceased. Reports of cruelty to the natives continued. At an executive meeting of the Congo Reform Association on July 7, chagrin was expressed at the reply of the British government and cooperation was urged with the United States toward solving the Congo problem. In July the archbishops of Canterbury and York, four bishops, and the moderators of the Church of Scotland and the United Free Church of Scotland signed a statement to the effect that the Congo situation was worse than ever and there was still to be found there "as cruel a tyranny as exists on earth." Two Protestant missionaries were tried at Leopoldville on September 17 on the charge of libeling the Kasai Company, but the judgment was rendered against the company. They were defended by M. Vandervelde, the Socialist leader in the Belgian Chamber, who had gone to the Congo for that purpose. On October 21, in a public address, Sir Edward Grey declared that his government could not recognize the annexation till it had received satisfactory replies to these two questions: "Is a great part of the native population still obliged to labor compulsorily for the greater portion of the year under the guise of taxation? And is the country still closed to trade?"

THE GOVERNMENT'S REFORM PLANS. On October 28 the Colonial Minister, M. Renkin, offered the colonial budget and outlined the government's reform scheme. He denied absolutely the charges of cruelty. During his recent visit he had questioned all who would be likely to know about it and had found no ground for the accusation. The authorities had investigated every abuse that was brought to their attention. The right of the state to the vacant lands assigned to it was incontestable, but having regard to native development the state would permit the natives to take the products raised on the lands of the Domain. On July

1 the state would open to freedom of trade the Lower Congo, Stanley Pool, Kwango, Ubangi, Bangala, Kasai, Katanga, Aruwimi, the southern part of the Eastern Province, and the banks of the Congo to Stanleyville; on July 1, 1911, an additional zone, and on July 1, 1912, the rest of the country. The government would abolish the provisioning of agents and impose its taxes in money. It would also investigate the arrangements made with concessionaries. Besides the ordinary estimates, extraordinary credits were asked for to the amount of 33,000,000 francs, of which the greater part was for public works requiring several years for completion. Smaller sums were to be spent in colonizing the Katanga region, reorganizing local administration and founding new centres of agriculture and stock-raising. When the new régime applies to these respective zones there will be no forced labor except on works of public utility and the natives will be authorized to cultivate the soil on their own account. The lands of the concessionary companies, however, are to be exempt from these rules and the government retains the right to make new arrangements with them. The government also proposed the increase of the native army. In Belgium the scheme was well received even by the most zealous of the reformers who had bitterly attacked the old system, and had been accused by its partisans of making common cause with the enemies of Belgium. The Socialist deputy, M. Vandervelde, who had been a caustic critic of King Leopold's administration, M. Beernaert, a staunch advocate of reform, and many other former critics, believed the Ministry sincere and the scheme as good a one as could in the circumstances be devised. In England, however, the Congo reformers continued to show distrust of the Belgian government. Their attitude throughout had caused much indignation among the Belgian reformers who had the same aim in view. At the beginning of December a protest signed by a number of prominent Belgians was addressed to foreign organs of government and learned bodies, setting forth this view and condemning "the attacks which Belgium has never deserved, and which she is convinced she can never deserve in the future, being fully aware, as she is, of her moral responsibility to the civilized world." On November 9, Mr. Asquith, the British Premier, declared that although the government had not had time to consider the matter fully, he welcomed the Belgian proposals as offering a more hopeful prospect than had hitherto appeared.

CONGO, FRENCH. See FRENCH CONGO.

CONGO FREE STATE. See CONGO, BELGIAN.

CONGREGATIONALISM. A term applied to a body of Christian believers, the rise of whose organized church life began with the Puritan movement, in England, during the latter half of the sixteenth century. They were first called Separatists, because they removed themselves, for worship after their simple forms, from the Church of England. They were sometimes called Independents. Religious bodies, independent of organized ecclesiasticism, have existed from the earliest days of Christianity. The Congregationalists in the United States constitute the eighth largest

religious body. On December 31, 1908, there were reported 719,195 members.

For the direction of its various affairs, Congregationalism in the United States is organized as follows: First, in Local Associations, in which the churches are represented by pastor and delegates; second, State Conferences, in which Local Associations are represented by delegates, and churches by pastors and delegates; third, National Council, which is constituted by the State body sending one delegate, and an additional number of delegates in the ratio of one to every ten thousand communicants, and one for every major fraction thereof; also, delegates from Local Associations, one for every ten churches, and one for every major fraction thereof. Local and State bodies usually meet annually. The National Council meets once in three years, and with it the Benevolent Societies hold their annual meetings. The Council has no authority whatever, and does not legislate for the churches. Its recommendations, however, are, according to their wisdom, cordially accepted and generally adopted by the churches.

In recent years the tendency of the churches has been toward federation; that is, the churches have become more closely related in fellowship—a fellowship of service; and have sought to be concentrated upon certain well-defined ends in which they are interested. The several national societies for benevolent work, instead of being independent organizations, as they once were, are now organized in representative capacities. Virtually the control of these societies is in the hands of the churches.

At the National Council in Cleveland, Ohio, 1907, the Committee on Polity emphasized the necessity and importance of a closer federation of Congregational churches, in which the autonomy of the local church should be respected, while at the same time a more compact organization of the entire body could be directed to well-defined purposes. In all probability, it will be reported at the next session of the National Council that the suggestions of the Committee on Polity have, in the main, been adopted.

The educational and missionary work of the churches is carried on under the auspices of the following societies: The American Board of Commissioners for Foreign Missions, the Congregational Home Missionary Society, the American Missionary Association, the Congregational Education Society, the Congregational Sunday School and Publishing Society, and the Congregational Board of Ministerial Aid. All these societies, except the last, which is under the control of the National Council, are representative in their constituencies, although they were at first organized as independent societies. The women of the church are well organized in foreign and home missionary work. There are smaller societies which are distinctly Congregational, such as the Boston Seamen's Friend Society. For fellowship and culture, clubs are organized. There are over fifty such bodies in the several States. Ministers find for themselves mutual help and improvement in associations. Ministers receive license, in some States from Conferences, and in others from Associations. Ordinations and installations are carried out through Ecclesiastical Councils, convened by letter missive from the church by which such services are desired.

The following summaries give the figures for Congregationalism in the United States, January 1, 1909: Churches, 6006; ministers, 5924; members, 719,195; Sunday school scholars, 692,809; families, 511,542. Contributed to Foreign Missions, \$528,249; Home Missions, \$537,788; American Missionary Association, \$141,560; Church Building Society, \$97,078; Education Society, \$199,637; Sunday School Work, \$64,468; Ministerial Aid, \$32,539; other benevolences added give a total of \$2,359,228; \$8,921,807 was spent in parish support. Church property (total) was estimated at \$64,886,605. The total amount of salaries paid exceeded \$4,321,916, making an average salary of \$907.

The theological seminaries are: Andover, Cambridge, Mass.; Atlanta, Ga.; Bangor, Me.; Chicago, Ill.; Hartford, Conn.; Oberlin, Ohio; Pacific, Berkeley, Cal.; Yale, New Haven, Conn. Forty colleges exist to-day which were founded by Congregationalists. A few of these colleges are unsectarian and independent, for which cause an advantage is taken of the Carnegie Foundation. These colleges enroll 25,182 students, under 1868 instructors; include 1,712,701 volumes in their libraries, and hold productive funds to the amount of \$26,941,466.46. The next session of the National Council will be held in Boston, Mass., October, 1910. The officers are: Hon. Thomas C. MacMillan, Chicago, Ill., Moderator; Rev. Asher Anderson, D.D., Boston, Mass., Secretary; Rev. Joel S. Ives, Hartford, Conn., Registrar and Treasurer.

The Congregationalists in foreign countries numbered on January 1, 1909, 643,172, of whom 459,147 were in England and Wales, 35,920 in Scotland, 35,920 in South Africa, 17,565 in Japan, and the remainder in other countries of Europe, Asia, Africa, and in Australia.

CONGREGATIONAL METHODIST CHURCH. A Protestant religious denomination, which was founded in 1852 in Georgia by those who had withdrawn from the Methodist Episcopal Church and desired to establish a church of Methodist doctrine, but giving the members a choice in their own government. The denomination had in 1909 15,529 communicants, 333 churches, and 337 ministers. Its strength is greatest in the Southern States. The Thirteenth Annual Conference was held at Anniston, Ala., November 19, 1909. In 1909 a union was effected with the United Methodist Churches of Arkansas, and with the Congregational Methodist Church North. The denomination maintains a publishing house at Atlanta, Ga., from which is issued its official organ, *The Watchman*, and other denominational publications. There is maintained a Bible school at Atlanta, together with a Bible Training School, Interstate College and a Music Institute. The denomination has shown considerable growth in recent years.

CONGRESS. See UNITED STATES.

CONNECTICUT. One of the New England Division of the United States and one of the thirteen original States. It has a total area of 4990 square miles, of which 4845 square miles are land, and 145 square miles water. The population in 1900 was 908,420. According to a Federal estimate made in 1909 the population in that year was 1,054,366. The capital is Hartford.

MINERAL PRODUCTION. The valuable mineral products of the State are limited to build-

ing stone. There are certain deposits of iron which have been worked in recent years, but the developments are not important. The value of the stone product in 1908 was \$1,125,799, as compared with a value of the product for 1907 of \$1,052,582. Of this product granite was valued at \$592,904; trap rock at \$473,219; sandstone, \$55,949; and limestone, \$3227. Connecticut ranks seventeenth among the States in the production of stone. The value of the mineral products of the State for 1908 was \$2,721,663, as compared with a value of the product for 1907 of \$3,389,519.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$2,981,720. Of this product oysters were the most valuable. Of these there were taken for market purposes 1,394,600 pounds, valued at \$1,167,650, and for seeding purposes, 2,553,500 pounds, valued at \$1,415,290. Next in order of value were menhaden, 28,636,000 pounds, valued at \$93,350; lobsters, 661,300 pounds, valued at \$84,280; cod, 820,300 pounds, valued at \$26,720; flatfish and flounders, 707,100 pounds, valued at \$21,260; swordfish, 240,100 pounds, valued at \$14,600. Among other fish taken were alewives, mackerel, shad, weakfish, clams and eels. There were 952 independent fishermen engaged in fishing in different parts of the State, and 1195 wage-earning fishermen were employed. The vessels engaged in fisheries numbered 237, and were valued at \$795,364. The cash capital invested in the fisheries of the State was \$572,290.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the important farm crops of the State in 1909 were as follows, according to figures of the United States Department of Agriculture: Corn, 2,460,000 bushels, valued at \$1,845,000, from 60,000 acres; oats, 302,000 bushels, valued at \$160,000, from 11,000 acres; rye, 187,000 bushels, valued at \$168,000, from 10,000 acres; buckwheat, 58,000 bushels, valued at \$58,000 from 3000 acres; potatoes, 4,320,000 bushels, valued at \$3,586,000, from 36,000 acres; hay, 564,000 tons, valued at \$10,885,000, from 490,000 acres; tobacco, 22,110,000 pounds, valued at \$3,648,150, from 13,400 acres. The corn, potatoes and tobacco grown in the State have shown a noteworthy increase in acreage since 1900. The potato crop of 1909 was much larger than that of 1908. In the latter year 2,720,000 bushels were raised. The acreage increased from 34,000 in 1908 to 36,000 in 1909. The hay crop showed a slight decrease in 1909, the figures for 1908 being 588,000 tons. The acreage, however, remained the same. The tobacco also showed a considerable decrease in production, the crop of 1908 having been 23,224,320 pounds. The acreage in 1909 showed a slight decrease. Only six States exceeded Connecticut in the total value of the tobacco raised. The number of farm animals in the State has remained practically constant since 1900, except for a considerable increase in the number of milch cows and sheep, the former numbering 137,000 and the latter 47,000, on January 1, 1910. The wool clipped in 1909 was 136,000 pounds.

EDUCATION. According to the report of the State Board of Education the number of children in the State between the ages of 4 and 16 on October, 1908, was 234,117. Of these there were enrolled in the common schools 183,785, an increase of 4608 over the previous year.

The average daily attendance was 139,646, the number of schoolhouses in the State, 1557, and the value of the public school property was \$16,582,824. The men teachers numbered 329 and the women teachers, 4696. The average monthly wage of men teachers was \$115.07 and of women teachers \$50.50. The total revenue for the purpose of education from all sources was \$5,027,877, and the expenditures were \$4,968,699.

FINANCE. The total yearly receipts for the fiscal year 1909 amounted to \$5,617,903, and the total expenditures to \$5,882,725, making expenditures in excess of receipts \$264,822. The expenditures in excess of receipts in 1908 amounted to \$816,056. The funded debt at the close of the year 1909 was \$1,874,100, and the net debt was \$2,013,407.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the Connecticut State Prison at Wethersfield, the Connecticut School for Boys at Meriden, the Industrial School for Girls at Middletown, the House of the Good Shepherd at Hartford, the Florence Crittendon Mission at New Haven, the Connecticut Hospital for the Insane at Middletown, the Norwich Hospital for the Insane at Norwich, and the Hartford Retreat at Hartford. Among the schools for various classes are the School for Imbeciles at Lakeville, public hospitals in various cities, and the county institutions for indigent and others. The number in the jails of the State September 30, 1908, was 1235. The expenditures for county jails were \$96,658. In the Connecticut School for Boys there were, October 1, 1908, 430 inmates, and in the Connecticut Industrial School for Girls, 272. The number of insane persons under restraint in the State September 30, 1908, was 3603.

POLITICS AND GOVERNMENT. Governor George L. Lilley, who was elected in November, 1908, and inaugurated on January 6, 1909, died April 21, 1909, broken down, it was said by his friends, by the strain of his campaign and the responsibilities of office. The legislature came together Wednesday, January 6, and did not finally adjourn until the 24th of August. On the 20th of January, Frank B. Brandegee, of New London, was reelected U. S. Senator, having carried the Republican caucus by 126 votes, against 111 cast for Congressman E. J. Hill, of Norwalk. The most important acts of Governor Lilley's administration consisted of his judicial appointments, which were: Frederick B. Hall of the Supreme Court to be Chief Justice after February 5, 1910, Samuel O. Prentice, of Hartford, reappointed to the supreme bench, Silas A. Robinson, of Middletown, and George W. Wheeler, of Bridgeport, promoted from the Superior to the Supreme Court; and, as judges of the Superior Court: George W. Wheeler, reappointed until his Supreme Court service should begin, Ralph Wheeler, of New London, reappointed, Edwin B. Gager, of Derby, reappointed, William S. Case, of Hartford, reappointed, Milton A. Shumway, of Killingly, reappointed; and new appointments: Lucien F. Burpee, of Waterbury and William H. Williams, of Derby. Governor Lilley was succeeded by the Lieutenant-Governor, Frank B. Weeks, of Middletown, and he appointed to the Superior Court, Gardiner Greene, of Norwich, and Marcus H. Holcomb, of Southington. Agitation in the General Assembly centred

largely upon the proposal for a public utilities commission, an employers' liability act and removing the \$5000 limitation for death of a human being. All three of these movements failed. Owing to heavy expenses for public buildings and good roads the State tax, omitted for many years, was levied by this General Assembly. A reformatory, for which \$400,000 was appropriated, was ordered to be established. On the 12th of August it was voted to defer to the next legislature action on the proposed income tax amendment to the Federal Constitution.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: Bills were passed concerning the sale of adulterated foods, the employment of women and children, tuberculosis and blacklisting.

OFFICERS: Governor, Frank B. Weeks; Lieutenant-Governor, office vacant; Secretary of State, Matthew H. Rogers; Treasurer, Freeman F. Patten; Comptroller, Thomas D. Bradstreet; Attorney-General, Marcus H. Holcomb; Commissioner of Insurance, Theodore H. Macdonald—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Simeon E. Baldwin, Democrat; Associate Justices, S. O. Prentice, Republican; F. B. Hall, Republican; John M. Thayer, Democrat; Alberto T. Roraback, Republican; Clerk, George A. Conant.

The State Legislature was composed in 1909 of 31 Republicans and 4 Democrats in the Senate, and 199 Republicans and 51 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

CONNESS, JOHN. A former United States Senator from California, died January 9, 1909. He was born in 1821, in Ireland. He came to the United States at the age of fourteen, and became apprentice to a piano maker. In 1849 he went to California as a gold seeker, and there became active in politics. He was candidate for Governor in 1861, and in 1862 was elected United States Senator. Largely through his efforts California was saved from seceding from the Union. He was a friend and admirer of Lincoln, and acted as a pall-bearer at the latter's funeral. Senator Conness was among the first to urge the building of a transcontinental railroad. Following the expiration of his term in the Senate he settled in Dorchester, Mass.

CONRIED, HEINRICH. An American impressario and theatrical manager of Austrian birth, died April 27, 1909. He was born in Bielitz, Austria, in 1855. His earliest ambition was to become an actor, and after several years of commercial life he became supernumerary in the Burg Theatre, Vienna. He acted in various parts until 1877, when he undertook the management of the Stadt Theatre, in Bremen, which had become bankrupt. In this enterprise he was successful, and in the following year he was engaged to come to New York to manage the Germania Theatre. He remained in this position for two years, then traveled as a star in cities where German drama was supported. In 1882 he became manager of the Thalia Theatre, in New York City. His artistic success was great, but the financial support was lacking, and Conried turned to the production of comic opera in English. In 1892 he succeeded Gustave Amberg as manager of the

Irving Place Theatre in New York City. His success in this was so great from an artistic standpoint that when Maurice Grau retired from the management of the Metropolitan Opera House, Mr. Conried was, in 1903, made his successor, and a company was formed to give him financial support. Under Mr. Conried's management the first production of *Parsifal* outside of Germany was given on December 24, 1903. Among other important productions and revivals made by him were *The Queen of Sheba*, *Die Fledermaus*, and *Hansel und Gretel*. In the season of 1905-6 Mr. Conried attempted an elaborate production of Strauss's *Salome*. After its first performance, it was removed by the lessees of the Metropolitan Opera House. Great losses were entailed by the Opera Company in the San Francisco fire of 1906. These unfortunate occurrences undermined Mr. Conried's health, and illness overcame him in December, 1906, but he continued his management of the opera season in 1907-8, although he was, for the greater portion of the time, unable to take an active part. His death occurred in Munich, while he was traveling for the benefit of his health.

In addition to his management of the Metropolitan Opera House, Mr. Conried was one of the most active supporters of the New Theatre, in New York City, and it was generally understood that he was to be its manager on the completion of the enterprise.

CONSERVATION ASSOCIATION, NATIONAL. An association organized in 1909, for the purpose of calling the attention of the people of the United States, and of their official representatives, to the imperative need for the wise development and protection of the country's natural resources. The Association was formed largely as a result of the conference of governors convened by President Roosevelt in the White House at Washington on May 13, 14 and 15, 1908. Its general objects are to advocate and support the adoption by the people themselves, and by their representatives, of definite and practical measures to carry the principles established at this conference into effect, and to oppose in all appropriate ways all action which is in conflict with these principles, whether such action is attempted by individual citizens or by legislative or administrative officials. Among the measures advocated by the Association are the following: The protection of the source waters of navigable streams, through the purchase or control by the nation of the necessary land within their drainage basins, especially in the Southern Appalachians and White Mountains; the enactment and enforcement, both by the nation and by the several States, of effective laws to prevent by active patrol during dry weather, and by other appropriate means, the spread of fire in all forests, whether publicly or privately owned; the reasonable but effective regulation of timber cutting on forest land, whether publicly or privately owned, the conservation of which is essential to the public welfare; the separation for purposes of taxation of the timber from the land on which it grows, so that the forest crop shall be taxed only when it is harvested, while the soil shall be taxed every year; and the support and extension of practical forestry.

The Association also advocates the preparation by a commission appointed by the President of the United States of a comprehensive

plan for waterway improvement, extending to all the uses of the waters and the benefits to be derived from their control, including navigation, with the relation of railroads and terminals thereto, the development and disposition of water power, the irrigation of arid lands, the drainage of swamp and overflowed lands, the prevention of soil-wash and the purification of streams for water supply. It urges the immediate undertaking and continuous prosecution of works clearly necessary under such general plan.

* As regards public lands the Association urges the directing of public attention to the need for preserving the fertility of the soils, the enactment of legislation whereby the title to the surface of public lands, and to the minerals therein, shall be granted separately, with every appropriate facility for miners to acquire such part of the surface as may be needed in the development of their claims, and the conservation and control of the unappropriated public range lands by the government in the interests of the stockman and homemaker, and subject at all times to homestead entry. The Association is in favor of the retention by the government of the title to all lands still in public ownership which contain phosphate rock, coal, oil or natural gas, and the development of the same by private enterprise under conditions which will prevent extortion and waste, and the enactment of appropriate legislation to prolong the coal supply, to reduce waste in mining, and to establish safeguards against the loss of life in the mines. The Association organized during the year several State committees. Its national headquarters are in New York City, and it also has offices in Washington. By bulletins and otherwise, it seeks to keep members well informed of its work. Its officers in 1909 were: President, Charles W. Eliot; Vice-President, Walter L. Fisher; Treasurer, John F. Bass; Secretary, Thomas R. Shipp; Director, Royal L. Melendy. The Executive Committee is composed of Charles W. Eliot, James R. Garfield, John F. Bass, Henry L. Stimson, Walter L. Fisher, Bernard N. Baker, Charles L. Pack and Joseph N. Teal. The general offices of the Association are in the Fifth Avenue Building, New York City.

CONSERVATION OF MASS. See **CHEMISTRY**.

CONSERVATION OF NATIONAL RESOURCES. See **AGRICULTURE**; **FORESTRY**; **LANDS, PUBLIC**; **NATIONAL CONSERVATION ASSOCIATION**; **NATIONAL CIVIC FEDERATION**; **United States, section ADMINISTRATION**.

CONSTRUCTION, BUILDING. See **ARCHITECTURE**.

CONVERSE, GEORGE ALBERT. An American rear-admiral, died March 29, 1909. He was born at Norwich, Vt., in 1844, and graduated from the United States Naval Academy in 1865. From 1865 to 1867 he served on the European squadron, and from 1869 to 1872 was on torpedo service. He was made lieutenant-commander in 1878, commander in 1889, captain in 1899, and rear-admiral in 1904. From 1899 to 1901 he was on service in the Bureau of Navigation, and from 1901 to 1903 commanded the battleship *Illinois*. He was chief of the Bureau of Equipment in 1903-4, chief of the Bureau of Ordnance from March 15 to August

1, 1904, and in the latter year was made chief of the Bureau of Navigation.

COOK, FREDERICK ALBERT. An American physician and explorer, who made a claim, which remained unsubstantiated, of having discovered the North Pole on April 6, 1907. See *POLAR EXPLORATION*.

COOK ISLANDS. See *NEW ZEALAND*.

COOKSON, BRYAN. An English astronomer, died September 13, 1909. He was born in 1874, and graduated from Magdalen College, Oxford, in 1896. After a tour around the world he took a post-graduate science course at Cambridge. While there he designed a new form of floating photographic zenith telescope for making original investigations on change of latitude and the constant of aberration. He spent two years at the Royal Observatory at the Cape of Good Hope, and there made valuable studies in the determination of the mass of Jupiter and the elements of the orbits of the satellites of that planet. Returning to Cambridge he erected his zenith telescope, and completed a series of observations with that instrument. The results of these have not yet been published. Dr. Cookson was considered one of the most promising of the younger school of astronomers.

COOPER UNION FOR THE ADVANCEMENT OF SCIENCE AND ART. An institution founded in New York City, for free instruction in science and art, by Peter Cooper, and chartered in 1857. The Institute includes the following departments: Day School of Technical Science; Night School of Science; Night School of Art; Woman's Art School; School of Stenography and Typewriting; School of Telegraphy; School of Elocution; School of Oratory and Debate, and Parliamentary Procedure; Reading Room and Library, and the Museum for the Arts of Decoration. Cooper Union has developed so rapidly in recent years that it has outgrown its original building in Cooper Square, and efforts have been made to add to its facilities by the erection of new buildings. A site occupied by the Sixty-ninth Regiment Armory, directly opposite, has been acquired, but funds have hitherto been lacking for the erection of a building. With the erection of this building, accommodation would be provided for a student body of 5000. During the year 1908-9 the total attendance was 3136, distributed as follows: Night School of Science, 1308; Night School of Art, 1126; Day School of Technical Science, 294; Woman's Art School, 323; School of Stenography and Typewriting for Women, 55; School of Telegraphy for Women, 30. The total number of books in the library is 47,788. The total revenue of Cooper Union for the year beginning January 1, 1909, was \$156,005, and the expenditures were \$152,983. The endowments amount to \$3,979,295. The officers in 1909 were: President, John E. Parsons; Secretary, R. Fulton Cutting; Treasurer, Edward R. Hewitt.

COPPER. The statistics with regard to the production of copper in 1908 in the different States in which it is mined, together with the available estimates for the production of 1909, will be found in the paragraphs on *Mineral Production* in the articles on these States. In this article the statistics are general in their nature.

The commercial conditions of the copper industry during 1908 were much more stable than in 1907. The variation in monthly averages of New York quotations was only 1.54 cents, as compared with 11.10 cents in 1907. As compared with prices for the years immediately preceding the price of copper remained low throughout the year, although it was almost exactly the same as the average price for the twenty-five years from 1883 to 1907. The average price for 1908 was 13.20 cents, and that for the preceding period of twenty-five years was 13 to 13.25 cents. Large stocks of copper were on hand at the beginning of the year, although several important producers were restricting their output. Other companies, however, were making their normal production, or even increasing their output in order to reduce cost. A notable feature of the industry for the year was the decrease in the cost of production, brought about by a general policy of economy in operation, and, especially, by an increased efficiency of labor. An important event early in 1909 was the formation of the Copper Producers' Association, which includes all the leading producers of the country. Its object is to collect and give out accurate information relative to the production, export and domestic consumption of copper.

The production of copper in 1908 by smelters from copper-bearing materials from the United States was 942,570,721 pounds, as compared with 868,996,491 pounds in 1907, and 917,805,682 pounds in 1906. The production in 1908 was the largest in the history of the industry. The mines producing copper in 1908 reported 956,840,578 pounds, or 14,269,857 pounds more than the smelters. This discrepancy is caused by the fact that a number of the small operators report the copper in their ores on the basis of commercial assay. Considerable copper is also recovered by the smelters from ores that are treated primarily for other metals. At the close of the year there were known to be 17,800,000 pounds of copper in the form of ore and concentrates in storage at the smelters in excess of the quantity at the beginning of the year, and the actual quantity was probably still greater.

Twenty-four States and Territories contributed to the copper production of 1908. Three leading copper States, Arizona, Montana and Michigan, produced 81 per cent. of the total output of 1908, as compared with 80 per cent. in 1907. The five leading States, including Utah and California, produced nearly 93 per cent. of the output in 1908, as compared with 92 per cent. in 1907.

The refinery output of the United States came in 1908 from fourteen plants, nine of which employed electrolytic methods, and five employed the furnace process on Lake Superior copper. The total production of refined new copper for 1908 was 1,094,700,123 pounds, the largest output in the history of the industry, exceeding the 1906 production of 1,079,052,479 pounds, and the 1907 output of 1,032,516,247 pounds.

The apparent consumption of refined new copper in the United States in 1908 was about 480,000,000 pounds, as compared with 488,000,000 pounds in 1907. To the apparent consumption of new copper should be added that produced from secondary sources, a large part of which entered into the year's consumption.

This amounted to about 23,000,000 pounds in 1907.

The average quoted price of electrolytic copper in 1908 was 13.2 per pound. In 1907 the price was 22 cents per pound.

The quantity of copper in manufactured form imported into the United States in 1908 was 218,705,487 pounds. Of this the largest amount was imported from Mexico, with British North America second. The exports of metallic copper from the United States in 1908 were 661,876,127 pounds. This is the largest export made in any year. The largest quantity was taken by the Netherlands, with Germany second and Great Britain third. The following table shows the world's production of copper by countries in 1907-8:

WORLD'S PRODUCTION (SMELTER OUTPUT) OF COPPER IN 1907 AND 1908, IN POUNDS

Country	1907	1908
Algeria	156,800	.....
Argentina	492,800	504,000
Australasia	92,400,000	88,480,000
Austria	2,060,800	3,528,000
Bolivia	5,600,000	5,600,000
Canada	57,377,600	63,996,800
Cape Colony	9,475,200	15,411,200
Chile	59,774,400	85,825,600
England	1,568,000	1,568,000
Germany	45,897,600	45,248,000
Hungary	280,000	224,000
Italy	7,392,000	6,664,000
Japan	109,614,400	96,320,000
Mexico	126,705,600	84,156,800
Namaqualand	5,600,000	.....
Newfoundland	3,875,200	3,203,200
Norway	16,702,400	20,585,600
Peru	23,688,000	33,600,000
Russia	33,600,000	44,990,400
Spain.....	111,272,000	117,790,400
Portugal.....		
Sweden	4,480,000	4,480,000
Turkey	2,800,000	2,352,000
United States	868,996,500	942,570,000
Total	1,589,809,300	1,667,098,000

Statistics and estimates received by the United States Geological Survey from all plants known to produce blister copper from domestic ores, and from all lake mines, indicate that the copper output from mines in the United States in 1909 surpassed all previous records. According to these estimates the output of blister and lake copper was 1,117,800,000 pounds as against 942,570,721 pounds in 1908, an increase of over 18 per cent. This not only exceeds the increase of any previous year, but is considerably greater than the total yearly increase since 1904. Montana shows a large increase, again taking first rank, which it lost to Arizona in 1907. The production in Montana will nearly equal or will possibly exceed the State's previous record output of 314,750,000 pounds made in 1905: Arizona holds second place with a slight increase. Michigan also exceeded the 1908 production. Large gains were made by Utah and Nevada, and California increased its output considerably. The figures published by the Copper Producers' Association indicate that the production of copper from all sources, domestic and foreign, for the first eleven months of 1909, exceeded 1,400,000,000 pounds, as against 1,161,176,085 pounds in 1908. Estimates at the end of the year indicated that the exports of copper surpassed by several million pounds the exports

for 1908, while the imports amounted to about 311,800,000 pounds, as compared with 218,705,487 pounds in 1908. Stocks of refined copper in the United States at the end of the year showed a considerable increase over those of January 1, 1909, but the accumulation occurred for the most part during the first half of the year. The price of copper remained close to 13 cents throughout the year, the average monthly New York quotation for electrolytic copper being a little under 13 cents.

According to the estimates of the *Engineering and Mining Journal* the production of refined copper in the United States in 1909 was, in round numbers, 1,410,000,000 pounds against 1,153,000,000 pounds in 1908. These figures represent the total production of American refineries which draw supplies of raw material, not only from the United States, Canada and Mexico, but also from many foreign countries. The same authority estimates the total domestic deliveries of refined copper for the year at 704,070,892 pounds, as against 488,500,000 pounds in 1908, and 538,000,000 pounds in 1907. The demand for copper in Germany improved materially in 1909, and in France business became fair. It was only in Great Britain that the demand continued sluggish. The tables below, taken from the *Engineering and Mining Journal*, give the production of copper by States in 1908-9, and the consumption of copper in the same years.

PRODUCTION OF COPPER BY STATES

State	1908	1909
Alaska	4,394,887	4,474,203
Arizona	290,167,795	291,075,846
California	36,890,353	53,048,094
Colorado	13,896,689	10,408,823
Idaho	8,749,559	8,168,267
Michigan	222,267,444	227,019,646
Montana	252,558,330	315,090,341
Nevada	12,174,269	50,820,000
New Mexico	8,623,652	7,001,136
Utah	70,978,952	105,349,740
Wyoming	2,384,356	100,000
South and East (a).....	20,822,368	21,524,333
Other States (b).....	4,387,836	4,206,999
Total	948,196,490	1,098,287,425

(a) Includes Vermont, New Hampshire, Pennsylvania, Virginia, North Carolina, Alabama and Tennessee. (b) Includes Washington, Oregon, South Dakota, Texas, Missouri, and the production of the lead desilverizers and others which it is impossible to distribute according to place of origin.

CONSUMPTION OF COPPER

	1908	1909
Stock Jan. 1.....	119,852,871	122,357,266
Imports of refined....	nil	nil
Production	1,152,895,019	1,410,116,663
Total supply	1,272,747,890	1,532,473,929
Exports	661,876,127	680,285,945
Remaining in U. S. ..	610,871,763	852,187,984
Stock Dec. 31.....	122,357,266	148,117,092
Delivered for consumption	488,514,497	704,070,892

The table on page 186, taken from the *Engineering and Mining Journal*, gives the average price of electrolytic and lake copper in New York and London in 1908-9 by months.

	New York		Lake		London	
	Electrolytic					
	1908	1909	1908	1909	1908	1909
January	13.726	13.893	13.901	14.280	62.386	57.688
February	12.905	12.905	13.098	13.285	58.786	61.198
March	12.704	12.387	12.875	12.826	58.761	56.231
April	12.743	12.561	12.928	12.931	58.331	57.363
May	12.598	12.893	12.788	13.238	57.387	59.338
June	12.675	13.214	12.877	13.548	57.842	59.627
July	12.702	12.880	12.933	13.363	57.989	58.556
August	13.462	13.007	13.639	13.296	60.500	59.393
September	13.388	12.870	13.600	13.210	60.338	59.021
October	13.354	12.700	13.646	13.030	60.139	57.551
November	14.130	13.125	14.386	13.354	63.417	58.917
December	14.111	13.298	14.411	13.647	62.943	59.906
Year	13.208	12.982	13.424	13.335	59.902	58.732

New York, cents per pound. Electrolytic is sterling, per long ton, standard copper.

for cakes, ingots or wirebars. London, pounds

COPPINGER, JOHN JOSEPH. An American army officer, died November 4, 1909. He was born in County Cork, Ireland, in 1834 and was educated in private schools. He served in the Roman army in Italy, and was made Chevalier for gallantry at La Roca in 1860. In 1861 he came to the United States and was commissioned captain of the 14th infantry in the same year. He served throughout the Civil War, and in 1865 became colonel of the 15th New York Cavalry. He was mustered out of the volunteer service in 1865, and was transferred to the 23rd infantry. He was promoted to major of the 10th infantry in 1879; lieutenant-colonel of the 18th infantry in 1891; brigadier-general in 1895, and major-general of volunteers in 1898. He was twice brevetted for gallantry and meritorious services during the Civil War. He took part in campaigns against the Indians in 1866, 1867 and 1868, and for his services was brevetted colonel. During the beginning of the Spanish-American War, he was appointed major-general of volunteers and placed in command of the 4th army corps, which assembled at Mobile, and afterwards established headquarters at Tampa, Florida. It was not, however, called upon to leave the United States. In October, 1898, he was placed on the retired list as brigadier-general on account of age. In 1883 General Coppinger was married to Miss Alice Blaine, daughter of the late James G. Blaine.

COQUELIN, ALEXANDRE HONORE ERNEST. A French actor known as Coquelin Cadet to distinguish him from his older brother, Benoit-Constant (see below), died February 8, 1909. He was born at Boulogne-sur-Mer in 1848. His parents destined him to follow their own trade of baking, but in 1864 he obtained entrance into the dramatic school of Regnier, where his brother received his early training. He took a prize for comedy at the Conservatoire in 1867, and in 1868 made his debut with Constant at the Théâtre Français. Failing to be chosen a sociétaire, he acted at the Variétés, but in 1876 returned to the Français, of which, in 1879, he was made a sociétaire. Although lacking the genius of his elder brother, Coquelin Cadet was a comedian of rare talent. His remarkable aptitude in delivering monologues and soliloquies made him one of the most sought after artists in the most famous salons. Among the plays in which he appeared with the greatest success were: *Le Bourreau des Cranes*, *Les Trois Epiciers*, *Denise*, *M. Scapin*, *Margot*, *La Vie de Bohème*, and *Climare le Bien Aimé*. His last public appearance was in October, 1907. Coquelin Cadet wrote many humorous pieces for the Parisian press.

COQUELIN, BENOIT-CONSTANT. A French actor, died January 27, 1909. He was born, the son of a baker, in Boulogne, in 1841. He early showed a disposition toward the theatre, and in 1859 he became a pupil of M. Regnier, at the Paris Conservatory. From the very beginning his great talent was evident. In less than a year he had won the second prize for comedy and had made his first appearance at the Théâtre Français as "Gros-Rene" in *Le dépit amoureux* (December 7, 1860). By his thirtieth year Coquelin was well established as one of the leading actors in Paris, and was a sociétaire of the Français. His first successes were in classic plays, such as *Les Plaiseurs*, *Les Fourberies de Scapin*, *Le Mariage de Figaro* and *Don Juan*. His tendency grew, however, toward modern drama, and he made notable successes in *L'Aventurière*, *L'Estrangère*, and *Les Fourchambault*. During this period he was under contract with the Théâtre Français, but as his fame grew he became impatient with the restraint imposed upon him, especially with the provision compelling him to appear solely at that theatre or forfeit the pension to which he was entitled. As a result of these conditions, Coquelin withdrew from the Théâtre Français and returned only after a compromise had been reached in 1889. This provided that for six months in the year he should act at the Théâtre Français, and that in the remaining six he should be free. This arrangement continued until 1892, when Coquelin finally severed his connection with the Français. His first visit to the United States took place in 1888, when he was accompanied by Mme. Jane Harding. He acted again with her in this country in 1894, and in 1900-1 with Mme. Sarah Bernhardt in *L'Aiglon*, *Cyrano de Bergerac*, and other plays.

Coquelin's talents lay especially in comedy rôles. He was a master of character acting, and his representations were remarkable for their technical finish. He had wonderful powers of elocution and infinite histrionic skill. He was unrivaled in classic French comedy, and was almost equally effective in romance and melodrama. In the interpretation of pathos and the deeper passions, his limitations were evident. His chief parts, in addition to those noted, were in *La Tosca*, *Malade imaginaire*, *La visite de nocces*, and *Florence de Rantzau*. Coquelin wrote extensively on matters connected with the stage.

CORBIN, HENRY CLARK. An American army officer, died September 7, 1909. He was born in Clermont county, Ohio, in 1842. His boyhood days were spent on a farm, and he gained only the education offered by the public

schools of the period. He was teaching school when Lincoln's second call for troops came, and he was appointed a second lieutenant in the Seventy-ninth Ohio Volunteers, commanded by Rutherford B. Hayes, afterwards President. During the War he served at the headquarters of the Department of Ohio, with the Army of the West, the Army of the Cumberland, and with General Steadman's division of General Thomas's army. He took part in many battles and was brevetted brigadier-general at the close of the war. After the war had ended it was Corbin's intention to study law and he returned to Ohio for that purpose. He was, however, persuaded by General Grant to accept a commission of second lieutenant in the regular army in 1886. His promotion was rapid and in 1869 he was made a major and assistant adjutant-general. He saw service in the field in the Fenian disturbances, and in campaigns against the Apaches, Sioux and Moquis in the Southwest. He was made lieutenant-colonel in 1889, colonel in 1896, and brigadier-general and adjutant-general of the army in 1898, major-general in 1900, lieutenant-general in April, 1906, and retired in September of the latter year. General Corbin, as adjutant-general, was really in command of the army during the Spanish-American War, and the power given him by President McKinley caused much jealousy on the part of high army officers who considered themselves displaced. As adjutant-general, Governor Corbin introduced many reforms which resulted in the improved efficiency of the army. Congress made him major-general in recognition of his services in the Spanish-American War. The reorganization of the General Staff in 1902 lessened General Corbin's powers, and he was assigned to the Department of the East. In 1904 he was sent to command the army in the Philippines, and his work there was highly commended. In 1906 he was made lieutenant-general of the army, the highest rank given in recent years. General Corbin took a great interest in Ohio politics, and had a large influence with the political leaders of that State.

CORINTH, EXCAVATIONS IN. See **ARCHÆOLOGY.**

CORN. In general a most satisfactory crop of corn was produced in 1909. The early prospects were unusually bright and inspired the hope that the three billion bushel mark would be reached, but a period of dry and extremely hot weather in August considerably reduced the brilliant prospects in many localities in the northern part of the Mississippi valley, and particularly in Illinois, Missouri, Kansas and Nebraska. Earlier in the season extremely dry weather had done much injury to the crop in Texas, Oklahoma, Arkansas and parts of Missouri, as well as in many localities in the East, especially in the Middle Atlantic States. The fall of the year was favorable to the ripening of the crop and very little injury was done by early frost. Later in the season, however, wet and cold weather in some parts prevented the ears from drying out properly, and the arrival of an early winter interfered with the harvest and caused a large portion of the crop to remain out in the fields. These unfavorable conditions, it is feared, will reduce the value of the corn for seed.

The area devoted to the crop this year ranks first, with an acreage of 108,771,000, or about 7,000,000 acres more than in 1908. The total

production reached 2,772,376,000 bushels, which ranks second only to the great crop of 1906. This crop is greater than the average of the five preceding years by 3.5 per cent. In value, however, the crop of 1909 is a record breaker and presents a most striking fact in the agricultural history of this country. The total farm value reaches the enormous sum of \$1,052,822,000 and is greater by 36 per cent., than the average of the five preceding years, while the farm price per bushel is 32 per cent. greater. The farm price per bushel on November 1, 1909, was 62.2 cents, which has been exceeded in only two years since 1866. The average yield per acre for the year is 25.5 bushels, which has often been exceeded. The largest average yield in any State, 41 bushels per acre, was secured in Connecticut, followed by Indiana with 40 bushels, Ohio with 39.5 bushels, Maine and Massachusetts each with 38 bushels, Vermont with 37 bushels, and New York with 36. The leading corn-producing States, with their acreage, production and value of corn for 1909 are given in the following table:

States	Acreage Acres	Production Bushels	Farm value Dec. 1, 1909 Dollars
Illinois	10,300,000	369,770,000	192,280,000
Iowa	9,200,000	289,800,000	142,002,000
Missouri	8,100,000	213,840,000	126,166,000
Indiana	4,913,000	196,520,000	98,260,000
Nebraska	7,825,000	194,060,000	97,030,000
Kansas	7,750,000	154,225,000	83,282,000
Ohio	3,875,000	153,062,000	85,715,000
Texas	8,150,000	122,250,000	92,910,000
Kentucky	3,568,000	103,472,000	64,153,000
Oklahoma	5,950,000	101,150,000	55,632,000
Tennessee	3,575,000	78,650,000	55,055,000
Michigan	1,976,000	69,950,000	42,670,000
South Dakota	2,059,000	65,270,000	32,635,000
Georgia	4,400,000	61,160,000	52,598,000
Minnesota	1,690,000	58,812,000	28,818,000
Louisiana	2,226,000	51,198,000	35,327,000
Wisconsin	1,533,000	50,589,000	30,353,000
Arkansas	2,800,000	50,400,000	36,288,000
Pennsylvania	1,525,000	48,800,000	34,160,000
North Carolina	2,898,000	48,686,000	41,383,000
Virginia	2,040,000	47,328,000	35,023,000
Alaska	3,233,000	43,646,000	37,099,000
Mississippi	2,810,000	40,745,000	33,003,000
South Carolina	2,218,000	37,041,000	33,337,000

All other States had an acreage of less than one million.

By some European statisticians the world's crop for the year is estimated at about four billion bushels, or over 100 million bushels more than the big crop of 1906. These same authorities give the production of various countries as follows: Hungary, 200,000,000 bushels; Argentina, 175,000,000; Mexico, 130,000,000; Italy, 100,000,000; Rumania, 95,000,000; Russia (European and Asiatic), 65,000,000; Egypt, 45,000,000; and Canada about 30,000,000 bushels.

Statistics show that apparently 80 per cent. of the corn crop of this country is used on the farm so that of this year's crop about 2,218,000,000 bushels will be used almost entirely for feeding purposes. Of the remainder about 240,000,000 bushels will be used for flour and grist mill products, 8,500,000 for the manufacture of starch, 9,500,000 for malt liquors, 17,000,000 for distilled liquors, 40,000,000 for glucose and 13,000,000 bushels for seed.

State corn shows are now held in many States, and the third National Corn Exposition was held at Omaha, December 6 to 18. Displays were made by 36 States and also by Canada and Mexico, and 24 States were represented by

exhibits made either by their agricultural college or experiment station or both. Indiana carried away the grand championship for the 10-ear as well as for the single-ear sample. The 10-ear sample was Johnson County White and the single-ear was a cross-bred product. Each grand championship was awarded a \$1000 trophy. This year the corn exposition was planned on broader lines than heretofore and in addition to corn other farm products were shown; and the railroads and manufacturers of farm machinery, food-stuffs, etc., were also represented.

CORNELL UNIVERSITY. An institution of higher learning at Ithaca, New York, founded in 1868. The number of students during the year of 1908-9 was 4859 and the number of instructors and professors 578. The books in the library numbered 369,051. There were received in gifts and endowments during the year \$185,091. The productive funds of the University amount to about \$9,000,000, and the annual income to about \$1,360,000. During the year the Graduate Department of the University, which had formerly been under the direct charge of the general university faculty, was organized into a separate graduate school to be designated as the Graduate School. The faculty of this school is to have exclusive jurisdiction over all graduate work and advanced degrees. There were many changes in the faculty during the year. Mark Vernon Slingerland (q. v.), assistant professor of economic entomology in the College of Agriculture, died during the year. Thomas Frederick Crane, professor of Romance languages and literature and Dean of the University Faculty, retired from active service and was appointed emeritus professor. Professor Adolph Meyer of the Medical College in New York City resigned to take charge of the department of psychopathology at Johns Hopkins University. Martin Wright Sampson was appointed professor of the English language and literature and head of the department. William Wistar Comfort was appointed professor of the Romance languages and literature and head of the department. Graham Lusk was appointed professor of physiology in the Medical College in New York City. Frank Sherman Meara was appointed professor of therapeutics and clinical medicine in the same city. William Bradley Coley was appointed professor of clinical surgery in the Medical College. A large number of promotions to professorships were made among the assistant professors of the University. The president is J. G. Schurman, LL. D.

COSTA RICA. A Central American republic, lying between the Caribbean Sea and the Pacific Ocean, and the republics of Nicaragua and Panama. The area is 18,691 square miles, and on December 31, 1908, the population was officially estimated at 361,779. The principal towns are: San José, the capital, with 26,682 inhabitants; Cartago, 10,000; Port Limon and Heredia, 8000 each; Alajuela, 6000; Puntarenas, 5000. In 1907 immigrants numbered 12,195 and emigrants 8510. Primary instruction is free and nominally compulsory. At the end of 1908 there were 357 primary schools, with 887 teachers and 27,452 pupils enrolled. Lyceums or colleges are established at San José, Cartago, Heredia, and Alajuela. For professional education there are faculties of medicine, pharmacy, dentistry, and law. The state religion is Roman Catholicism.

INDUSTRIES AND COMMERCE. Agriculture is

the principal industry, and almost any crop can be grown, but the chief are bananas and coffee. The production of Costa Rican coffee, which is of most excellent quality, has not greatly developed on account of the competition of cheaper grades from Brazil; but banana culture has increased remarkably, the fruit finding a ready market in New Orleans, Mobile, New York, and Boston, and there is now being made an extensive propaganda, with satisfactory results, to introduce Costa Rican bananas into European ports. Corn, sugar, rice, and potatoes are commonly cultivated. Cacao production and export are increasing notably. Live-stock raising is of considerable importance; according to the latest figures available, cattle number 361,045, horses 59,173, and swine 111,540. Gold and silver are mined. The country contains valuable woods and timber, and in 1909 a concession was granted for the cutting and exporting of cedar and mahogany from a tract of 400 square miles near Guapiles.

In 1908 the imports were valued at \$5,629,405, a decrease of nearly 25 per cent. as compared with 1907, and the exports at \$7,757,525, a loss of over 10 per cent. The leading imports were: Fabrics, \$1,276,409; flour, \$380,412; live-stock, \$239,498 (including 8613 cattle, as against 27,539 in 1907); and machinery, \$181,427. The chief exports in 1908 were: Bananas, \$5,030,004; coffee, \$2,199,545 (8,977,531 kilos, against 17,325,531 in 1907); gold and silver bullion, \$738,858 (an increase of \$153,132); cacao, \$79,518; lumber, \$76,413; and hides and skins, \$62,652. Of the imports 46.5 per cent. came from the United States, 22.8 per cent. from Great Britain, 15.05 per cent. from Germany, and 7.7 per cent. from France. Of the exports the United States received 52.77 per cent. and Great Britain 43.03 per cent.

COMMUNICATIONS. The total length of railways in 1908 was about 400 miles. A line (103 miles) connects San José with Port Limon, and another line (67 miles) is expected to be finished early in 1910 between San José and Puntarenas, on the Pacific. The mileage of lines terminating at Port Limon (including branches and sidings) is 332. In 1907 there entered the ports of Limon and Puntarenas 711 vessels of 1,119,970 tons. Costa Rica has 16 navigable streams, some of which are utilized for steamboat transportation. In 1907 there were 1207 miles of telegraph wire, and in 1908 73 post-offices.

FINANCE. The monetary standard is gold, and the unit of value the colon, worth 46.5 cents. For fiscal years, the revenue and expenditure have been as follows, in colones:

	1906	1907	1908
Revenue.....	6,211,437	7,654,874	7,916,474
Expenditure.....	5,913,584	7,095,503	9,191,449

Estimated revenue and expenditure for the fiscal year 1909 were 7,535,000 colones and 7,359,003 colones respectively. Revenue is derived principally from customs (over half) and liquors. In 1908 the foreign debt amounted to some \$14,350,000 (including interest arrears of \$462,000); the internal debt was 9,752,684 colones. On March 31, 1909, the banks of issue in the Republic held 1,101,198 colones in bank bills and a reserve fund of 510,393 colones. A decree of June 18, 1909, allows banks of issue to issue notes secured by a gold reserve of 40 per

cent. of the total amount of outstanding notes, in place of 50 per cent., as formerly provided.

GOVERNMENT. The executive authority is vested in a president, who is elected for a term of four years, by indirect vote, and is assisted by a cabinet of four members. The legislative power devolves upon a Chamber of Representatives, elected by indirect vote for four-year terms. The President in 1909 was Cleto González Víquez, whose term of office began May 8, 1906. The Republic is divided into five provinces and two comarcas, administered by governors appointed by the President.

Costa Rica has one torpedo-boat and one gunboat.

COST OF FOOD. See **FOOD** and **NUTRITION.**

COTTER, JOSEPH B. An American Roman Catholic bishop, died January 27, 1909. He was born in 1844, in Liverpool. While still a youth he came to America, in 1850, and was educated at St. Paul, Minn., and St. Vincent, Pa. He carried on his theological studies at St. John's University. In 1871 he was ordained priest and from that time until 1889 he was pastor of St. Thomas Church at Winona, Minn. He was consecrated first Bishop of the See of Winona in 1889. He was for three terms president of the Catholic Total Abstinence Union of America, and was a prominent advocate of total abstinence.

COTTON. The Department of Agriculture estimated the crop of 1909-10 at 10,088,000 bales of 500 pounds each, the smallest since that of 1903. The reduction of the crop was due to a number of factors,—the advance of the boll weevil, a wet spring which delayed planting, followed by drought in many regions, disease, etc. While the crop itself is not as large as in some previous years, its value exceeds that of any other ever produced. The Secretary of Agriculture in his annual report estimated the crop and seed as worth \$850,000,000. On November 1, 1909, the selling price on the farm was 13.7 cents per pound, the highest farm price since 1873. On January 10, 1910, the New York price of middling cotton was 15.5 cents per pound. According to the ginning reports issued by the United States Bureau of the Census on January 1, 1910, there had been ginned 9,664,285 bales as compared with 12,465,289 on January 1, 1909, and 9,951,505 for the same date in 1908. This estimate counts the running bales, two round bales counting as one, and excludes lintres.

The estimated crop and amount ginned to January 10, 1910, by States were as follows:

State	Estimated Crop 500 lb. bales	Rep. ginned Jan. 1, 1910 Run. bales
Alabama	1,020,000	1,017,826
Arkansas	715,000	657,732
Florida	57,000	60,136
Georgia	1,800,000	1,812,994
Louisiana	280,000	251,844
Mississippi	1,020,000	1,005,166
North Carolina	615,000	606,296
Oklahoma	617,000	526,602
South Carolina	1,095,000	1,099,718
Tennessee	240,000	226,791
Texas	2,570,000	2,326,650
All others	59,000	54,530
Total	10,088,000	9,646,285

The crop of 1908-9 was 13,553,283 running bales, which included 93,858 bales of Sea Island cotton and 346,126 bales of lintres. The cotton production for the past 10 years reduced to 500

pound bales and including lintres was as follows:

COTTON PRODUCTION OF THE UNITED STATES, 1899-1908

Year	Bales	Year	Bales
1908	13,587,306	1903	10,045,615
1907	13,375,461	1902	10,827,168
1906	13,595,498	1901	9,675,771
1905	10,804,556	1900	10,266,527
1904	13,679,954	1899	9,459,935

THE PRODUCTION OF COTTON AND RANK OF THE VARIOUS STATES IN 1908 WERE:

State	Rank	500-lbs. bales
Texas	1	3,913,084
Georgia	2	1,980,077
Mississippi	3	1,704,972
Alabama	4	1,374,140
South Carolina	5	1,195,235
Arkansas	6	1,058,089
Oklahoma	7	706,815
North Carolina	8	663,167
Louisiana	9	486,500
Tennessee	10	359,859
Florida	11	63,221
Missouri	12	61,907
Virginia	13	12,328
All others		7,954

The States included but not named in the above table are Kentucky, New Mexico, Kansas, and Arizona.

The production of Sea Island cotton, while it has been attempted in many parts of the United States away from the coast, is now practically confined to four counties in South Carolina, 26 in Georgia, and 17 in Florida. The crop for 1908 was 93,858 bales, produced as follows: Florida 34,775 bales, Georgia 44,549 bales, and South Carolina 14,534 bales. The Sea Island cotton is not baled as is the case with upland, and the average gross weight of the bales in 1908 was: Florida 382.7 pounds, Georgia 406.7 pounds, and South Carolina 351.8 pounds. The crop of Sea Island cotton for 1909, as far as it was ginned on January 1, 1910, was: Florida 27,482 bales, Georgia 49,886, and South Carolina 12,131 bales, indicating a crop equal to that of 1908 or possibly a somewhat greater one. Efforts have been made to introduce the cultivation of Sea Island cotton into the British West Indies with some success. It is also grown to some extent in Porto Rico and 181,000 pounds, valued at \$52,600, were shipped from there to the United States in 1908. Through the agricultural experiment station in Hawaii the possibility of growing Sea Island cotton of excellent quality has been demonstrated, and it is probable that an attempt will be made in 1910 to produce it on a commercial scale.

The world's production of cotton as shown by the reports of mill consumption in 1908 was about 3,000,000 bales greater than in 1907.

World's production of cotton for mill consumption, 1907 and 1908:

Country	Production (bales, 500 pounds net)	1907
United States	13,002,000	10,882,000
British India	2,914,000	2,498,000
Egypt	1,276,000	1,296,000
Russia	846,000	620,000
China	600,000	426,000
Brazil	425,000	370,000
Peru	57,000	55,000
Mexico	140,000	70,000
Turkey	80,000	80,000
Persia	50,000	50,000
Other countries	185,000	165,000
Total	19,574,000	16,512,000

The above figures do not fully represent the world's production of cotton, as in India, China, and other countries of Asia, as well as in South America, much of the cotton does not enter into commercial channels.

According to U. S. Bureau of Census Bulletin 106 the number of spindles operated in the world during the year ended August 31, 1909, was 133,377,000. Of this number, 28,018,305 spindles in the United States consumed 5,240,719 bales of cotton. The active spindles in the United States were distributed as follows: Cotton growing States, 10,429,200; New England States, 15,591,851; and all other States, 1,997,254. The number of active spindles in the United States in 1909 was 512,883 less than in 1908, but the amount of cotton consumed was 701,629 bales greater.

The exports of raw cotton from ports of the United States for the year ending August 31, 1909, were 8,574,024 bales, valued at \$419,733,103, almost exactly a million bales more than for the year previous. Of the exports, the United Kingdom took 3,665,355 bales, Germany 2,438,090 bales, and France 1,098,173 bales. While the United States is the greatest cotton-producing country of the world, furnishing over 67 per cent. of the crop raised in 1908, it received from abroad cotton to the value of \$14,172,241, Egypt and Peru supplying the greater amounts of the direct imports. The cottons of these countries have special properties not found in those produced in this country, and they are imported for special uses. Under the tariff law of 1909 cotton and cotton waste or flocks are admitted free of duty, while all kinds of manufactured goods are subject to ad valorem duties varying from 15 to 60 per cent. In addition to the ad valorem duties on certain classes of goods specific duties are also collected.

The cotton crop of India for 1908 as reported by the Indian government was 2,914,400 bales. The acreage was 19,739,000 acres, a reduction of nearly two million acres from 1907. The average reported yield was only 74 pounds per acre, due in part to the primitive method of cultivation. The estimates of the Indian crop are generally too low, as is shown later by the reports of the exports and mill consumption. In addition to the exports and local mill consumption it is estimated that fully 600,000 bales are annually used in the homes of the people and not considered in the crop returns.

Cotton production in Egypt has been extended until, according to U. S. Bureau of Census Bulletin 100, the crop of 1908 reached 1,275,000 bales of 500 pounds each. According to a German investigator, who made quite a study of the matter in Egypt, the crop of 1908 was 1,420,000 bales. The same author states that the yield is diminishing, due to a number of factors, as soil deterioration, lack of proper fertilizers, unusual meteorological conditions during the past few years, improper use of irrigation water, insect and fungus pests, etc. The yield is said to have fallen from 550 pounds per feddan (1.04 acres) in 1895 to 428 pounds in 1906.

The extension of the cotton area in 1909 did not make very much progress except possibly in Africa. The English, German, and French governments or semi-public associations in those countries are endeavoring to develop cotton cultivation in their colonies. The British Cotton Growing Association was formed to foster the production of cotton in the British colonies. A serious drought in West Africa was responsible

for the first serious setback in the enterprise. The estimated total production of the colonies in 1908, India excepted, was 23,000 bales, a reduction of about 2000 bales from the crop of 1907. The West Indies produced about 7100 bales, practically all Sea Island cotton, in 1908, an increase of 500 bales. The crop of the West African colonies was 6400, a loss of 5200 bales, and about 2500 bales were produced by other British colonies. The most marked increase was in Uganda, where 5000 bales were grown in 1908, an increase of 3000 bales over the production of 1907. Experiments in Ceylon indicate that Egyptian cotton can be grown in that island, yields of over 300 pounds per acre having been obtained. In the Transvaal from 200 to 400 pounds of upland cotton per acre have been secured in experiments fostered by the British Cotton Growing Association. Sir Alfred Jones, prominently identified with this association, died December 13, 1909. In the French possession of Tahiti about 300 bales of Sea Island cotton were produced in 1908. Experiments in Mozambique were a failure with Sea Island and Egyptian cottons, and only a partial success with some varieties of American upland cotton.

COTTON SEED PRODUCTS. The so-called by-products of cotton are each year becoming more extensively utilized. During the year ending June 30, 1909, there were produced in the United States, 5,903,838 tons of cotton seed, of which 3,669,747 tons were manufactured. From this there were obtained products to the value of \$86,092,583 as follows: 146,789,880 gallons of oil, 1,491,752 tons of oil cake and meal, 1,330,283 tons of hulls, and 165,138,628 pounds of lintres. Of the crop of 1908 there were exported cotton seed valued at \$353,213, cottonseed oil valued at \$17,226,451, and cake and meal to the value of \$11,889,415.

THE WORK OF THE U. S. DEPARTMENT OF AGRICULTURE. The proposed standards for grading cotton have been prepared and delivered to the Secretary of Agriculture, with the recommendation that they be not put in use before September 1, 1910. In the meantime efforts are being made to bring these standards to the attention of exchanges and buyers in this country and abroad where American cotton is purchased. Much attention is being given to experiments in breeding cotton for various purposes, such as improved staple, disease resistance, weevil resistance, as well as for varieties adapted to certain localities or conditions where the usual kinds do not do well. The work with Egyptian cotton in Arizona and California brought out some unlooked for variations, indicating a lack of acclimatization, and probably the hybrid origin of the Egyptian cottons. The Mexican boll-weevil investigations have been continued, and this pest has spread over much of Louisiana and the Delta region of Mississippi, where its ravages have been more severe than they were in Texas. This pest is estimated to have destroyed \$20,000,000 worth of cotton in 1909, and as it progresses into regions where the winter and spring conditions are more favorable still greater losses must be expected. Encouraging results have been obtained from the introduction of parasites of the boll weevil, and together with cultural methods, early maturing varieties of cotton, etc., it is hoped in a measure to control this pest. The use of special implements by which the infested squares and bolls are drawn to the open space and ex-

posed to the heat of the sun, has proved a valuable aid in combating the weevil. In the meantime considerable progress is noted throughout the South in the diversification of its agriculture as a result of the demonstration work of the U. S. Department of Agriculture and the State Experiment Stations.

COTTON, CHARLES STANHOPE. A rear-admiral (retired) of the United States Navy, died at Nice, February 19, 1909. He was born at Milwaukee in 1843, and was appointed to the United States Naval Academy in 1858. In 1861 he was ordered into active service. He served throughout the Civil War, rising to the rank of lieutenant-commander. Among the engagements in which he took part was that between the *Merrimac* and the *Monitor* in March, 1862. He served on the *Iroquois*, and the *Ouida*, and with the West Gulf blockading squadron. From 1865 to 1869 he was on duty on the Asiatic station; 1869-70 at the Naval Academy. From 1876 to 1880 he was on duty at the New York Navy Yard, and from 1880 to 1883 commanded the *Monocacy* on the Asiatic station. At the outbreak of the Spanish-American War Captain Cotton was assigned to the command of the cruiser *Harvard*, and in Santiago in July, 1898, he rescued the crews of the Spanish ships *Oquendo* and *Maria Thèresa*. In 1903-4 he commanded the European station, and in the latter year retired from active service.

COTTON SEED OIL AND COTTON PRODUCTS. See COTTON.

COUNTRY LIFE COMMISSION. See AGRICULTURE.

COWS. See STOCK RAISING.

CRAIGHILL, WILLIAM PRICE. An American soldier, died January 18, 1909. He was born in Virginia in 1833, and graduated from the United States Military Academy in 1853. He served in the Civil War and in 1865 was brevetted lieutenant-colonel for meritorious services. After the war he was promoted through several grades until, in 1887, he became colonel in the Engineer Corps. He was appointed chief engineer, with the rank of brigadier-general, in 1895. On February 1, 1897, he was retired at his own request, after more than 40 years' service.

CRANE, CHARLES R. See UNITED STATES, paragraphs *Administration* and *Diplomatic Service*.

CRAWFORD, COE ISAAC. An American public official, United States Senator (Republican) from South Dakota. He was born in Volney, Iowa, in 1858, and received his preliminary education from private tutors. He graduated from the Law School of the University of Iowa in 1882 and in the same year was admitted to the practice of law. He practiced in several towns in the State, finally locating in Huron. From 1886 to 1888 he was State Attorney. In 1889 he was a member of the territorial legislative council. He was elected a member of the South Dakota Senate in 1890 and was Attorney-General of the State from 1892 to 1896. He was elected Governor of the State in 1907 and resigned from this office on his election as United States Senator.

CRAWFORD, FRANCIS MARION. An American novelist, died April 9, 1909. He was born at Lucca, Italy, August 2, 1852. His father was Thomas C. Crawford, the sculptor, and his mother was Louisa Ward Crawford, a sister of

Julia Ward Howe. His parents were at the time of his birth at the Baths of Lucca. While he was still very young they returned to their native country and spent some years there. At this time Marion Crawford was sent to St. Paul's school at Concord, N. H., and here he showed remarkable efficiency as a Latin scholar. Following this he went to Trinity College, Cambridge, where he made a study of Oriental and European languages. He did not take his degree, but in 1879 went to India to continue his study of Sanskrit. Here for two years he edited the *Indian Herald* at Allahabad. At the same time he acted as correspondent for several newspapers. Later he went to Italy and from thence to New York City where he was occupied as literary critic for several newspapers and periodicals. His career as a novelist began by accident. In India he had met a man named Jacobs, who, while acting for an English syndicate, had sold the largest diamond in the world to the Nizam of Hyderabad for \$240,000. The British government, on hearing of this, protested against the purchase, and the case was carried into the English courts. Crawford, while in New York, repeated this story to his uncle, Samuel Ward, who liked it greatly and urged him to make a short story of it and publish it. This he did and it appeared as *Mr. Isaacs*, which at once attained great popularity. From this time Crawford's life was given up chiefly to the writing of novels. His most notable stories were those written with the city of Rome for a background and included in the *Saracinesca* series. He wrote also several stories of American life, and a number of historical works, chiefly dealing with Italian subjects. He lived almost entirely in a beautiful villa at Sorrento overlooking the Bay of Naples. Mr. Crawford had an easy and fluent gift of narrative and his books are almost without exception eminently readable. The best known are: *Dr. Claudius* (1883); *Roman Singer* (1884); *A Tale of a Lonely Parish* (1886); *Saracinesca* (1887); *Sant' Ilario* (1889); *A Cigarette Maker's Romance* (1890); *Don Orsino* (1892); *Pietro Ghisleri* (1893); *The Ralstons* (1894); *Via Crucis* (1899); *In the Palace of the King* (1900); *Marietta, a Maid of Venice* (1901); *Arethusa*; *Little City of Hope* (1907); *Prima Donna*; *The Diva's Ruby* (1908). His historical and descriptive work includes *Constantinople*; *Ave Roma Immortalis* (1908); *Rulers of the South* (1900). He wrote also a play, *Francesca di Rimini*, which was produced in 1902 by Sarah Bernhardt. Two posthumous novels from his pen were published in 1909, *The White Sister*, and *Stradella*.

CRAWFORD, OSWALD. An English writer, died January 31, 1909. He was born in 1834, and was educated at Eton, and Merton College, Oxford. After service in the Foreign Office he was appointed, in 1867, Consul at Oporto, where he served until 1891. He wrote books of travel, novels, and poems. Among his works are: *Travels in Portugal*; *Portugal Old and New*; *Sylvia Arden*; *The New Order*; *Revelations of Inspector Morgan*. He wrote many essays and poems under the pen-names "John Dangerfield," "George Windle Sandys," "John Latouche," and "Joseph Strange."

CREMATION OF GARBAGE. See GARBAGE and REFUSE DISPOSAL.

CRETE. A Mediterranean island south of Greece, constituting since 1898 an autonomous

state subject to the suzerainty of Turkey. Area, 3327 square miles; population in 1900 (exclusive of 6113 foreigners), 310,185, of whom 269,848 were Christian and 33,496 Mussulman. In twenty years the Greek element has increased by over 62,000 and the Mussulman decreased by nearly 40,000. The leading towns, with population in 1900, are Canea, the capital, 24,537, and Candia, 22,774. Primary instruction is nominally compulsory. For the year 1907-8 there were reported 621 Christian primary schools, with over 30,000 pupils, and 19 Mohammedan primary schools, with about 2000 pupils; and 29 Christian secondary schools, with over 4000 pupils. There is an annual government grant of about 750,000 drachmas for education (882,000 estimated for the year 1907-8).

The chief industry is agriculture, and the leading product olive oil, which in part is used in the manufacture of soap. The average annual oil production is about 33,000 tons; soap, about 3,155,000 kilos, valued at about 17,600,000 drachmas. Other important products and exports are carob beans, wine, raisins, chestnuts, almonds, hides and skins, and silk cocoons. The largest import is textiles; others of importance are flour, rice, barley, timber, tobacco, sugar, and coffee. In 1906 imports and exports amounted to 19,270,053 drachmas and 17,391,009 drachmas respectively; in 1907, 18,751,520 and 11,966,992 respectively (the drachma is worth 19.3 cents). The olive oil export in 1906 was valued at 8,739,138 drachmas. The trade is chiefly with Greece, Turkey, Austria-Hungary, and Great Britain.

For the year 1907-8 provisional figures for revenue and expenditure were 5,950,220 drachmas and 4,662,096 drachmas respectively. Customs yield about 2,500,000 drachmas annually. In 1907 the public debt was 5,317,226 drachmas; the government has been authorized to borrow 9,300,000 drachmas, mostly for public works.

HISTORY. In 1898, Great Britain, Russia, France, and Italy, as protecting Powers, brought about the autonomy of Crete under a high commissioner, whose appointment, since 1906, lies with the King of the Hellenes. The High Commissioner for the five-year term from October 1, 1906, is Alexander Thr. A. Zalmis, formerly Premier of Greece. The Constitution of 1907 provides for a representative assembly (Bulê). Foreign relations are dealt with by representatives of the protecting Powers at Athens. The chief question in 1909 was the status of Crete after the withdrawal of the troops by the four protecting Powers. (See *TURKEY*, paragraphs on *History*). The strong desire of the Greek element in the population for union with Greece, caused much apprehension. The troops of the four protecting Powers, Great Britain, Italy, France and Russia, were withdrawn from Canea on July 26, but four warships of the Powers were stationed in the neighboring waters. The question of the flag now threatened to cause international difficulties. On August 3, the Cretan Executive Committee issued a decree ordering the Cretan flag to be hoisted on the fortress each day and at certain other places on Sundays and holidays. This caused much ill-feeling in Turkey and the Turkish government was urged by many to adopt vigorous measures. It addressed a menacing note to the Greek government complaining of the acts of certain Greek officers in Macedonia and Crete and demanding the formal renunciation of Crete by Greece. The Powers

protested against the flying of the Cretan flag at Canea and demanded that it be hauled down. This greatly irritated the Cretans and the authorities, in view of the popular feeling, did not obey the command of the Powers. On August 17 the international squadron of the four protecting Powers entered the harbor of Canea. The consuls informed the authorities that the flag would be lowered. The government, which had failed to carry into effect the decision of the Powers as to the flag, resigned, and on August 18 the foreign warships landed 300 men who cut down the flag-staff and left a guard of 60 at the fort. Early in November the Turkish government addressed a note to the Powers asking for an early settlement of the Cretan question in such manner as while granting a full measure of autonomy would make annexation impossible. To this the Powers replied in December to the effect that the time was not ripe for fixing definitely the régime of the island, that they would maintain the *status quo*, and that dangerous complications might follow negotiations on the subject at the present time.

CRETE, EXCAVATIONS IN. See *ARCHÆOLOGY*.

CRETONI, SERAFIN. A Cardinal of the Roman Catholic Church, died at Rome, February 23, 1909. He was born at Sariano, Italy, 1833, and was created cardinal priest June 22, 1896. In 1895 he was Papal Nuncio to Spain, and assisted in winning the support of the Holy See to the present dynasty, and in bringing over the Spanish clergy from the Carlist cause.

CRICKET. The Gentlemen of Ireland, for the fourth time, visited the United States and Canada in 1909 and played a total of 7 games. They defeated New York, Baltimore and Toronto, lost 2 games to the Gentlemen of Philadelphia and drew 2 games, one with the Colts of Philadelphia and the other with the Ottawas. In the thirty-fifth annual cricket match between teams representing the United States and Canada, the Dominion players won by 143 runs. Canada scored 156-194 and the United States, 85-122. The Kings County Club won the Class A championship in the Metropolitan District League, and the Manhattan Club won the Class B championship. Philadelphia players visited the island of Jamaica during the year and won 6 of the 11 games played.

CRITTENDEN, THEODORE THOMAS. An American public official, Governor of Missouri in 1878, died May 29, 1909. He was born in Selby county, Ky., in 1832, and was educated at Centre College. He went to Missouri before the Civil War and became a law partner of Senator F. M. Cockrell. He was appointed Consul-General to Mexico by President Cleveland.

CRITTENTON, CHARLES N. An American merchant and philanthropist, died November 16, 1909. He was born in Henderson, Jefferson county, N. Y. He began in the drug business in New York City in 1861, and amassed a large fortune. In 1882, after the death of the youngest of his children, a daughter aged five years, he devoted himself largely to evangelistic work. He organized the National Florence Crittenton Mission and continued its president until his death. These homes are for mothers, children, and helpless girls. Mr. Crittenton organized 75 of these missions in the United States and abroad. They are maintained in Marseilles, France; Tokio, Japan; Shanghai, China; and

the City of Mexico. In New York City are maintained the Florence Crittenton Mission and the Florence Crittenton Home for Mothers and Babies. Mr. Crittenton was an active advocate of Prohibition and at one time ran for Mayor of New York City on the Prohibition ticket.

CROSS COUNTRY RUNNING AND MARATHONS. The interest in long distance running, aroused by the Olympic Games in 1907, continued in 1909 and the sport enjoyed another season of great popularity. The Juniors and Seniors National Cross Country Run, held at New York under the auspices of the Amateur Athletic Union, attracted a large field of contestants. The Juniors' championship was won by W. J. Kramer of the Acorn A. A., who ran the 5½ miles in 29 minutes 28½ seconds. J. T. Crowley of the Irish A. A. A., finished second. The prize for the highest team score went to the Irish A. A. A., which made a total of 39 points. In the senior event the same winners finished first and second as in the junior, the winning time for the 6½ miles being 31 minutes 17½ seconds. The seniors' team prize also went to the Irish A. A. A. The Intercollegiate championship was held at Brookline, Mass., and Cornell again was the victorious team. The individual winner was T. S. Berna of Cornell, who ran the 6 miles in 33 minutes 5½ seconds. The team scores were: Cornell, 22; Massachusetts Institute of Technology, 88, and Michigan, 112. The Western Conference Championship was won by Minnesota, with Nebraska second. The individual champion was Wason of Purdue, who covered the 5 miles in 27 minutes, 8 seconds.

A wave of Marathon running swept from one end of the United States to the other in 1909 and hundreds of these classic events were run off. The most important were the Grand International Professional Marathon and the Professional Marathon Derby, both of which were run at the Polo Grounds, New York. Henri St. Yves of Scotland, the winner in both these contests, was a dark horse and surprised the experts by the wonderful showing he made. In the last named event St. Yves made the best time ever made for the distance, covering the 26 miles, 385 yards in 2 hours, 40 minutes and 50½ seconds. Pietro Dorando finished second and J. Hayes third. J. Svanberg of Sweden finished second to St. Yves in the Grand International. Other prominent Marathons of the year and their winners were: February 5, Longboat against Shrubbs, won by Longboat; March 15, Hayes against Dorando, won by Dorando; April 18, Svanberg against Simpson, won by Svanberg; May 22, Professional Marathon over London Olympic course, won by Gardner, Labry second; May 29, International at Chicago, won by Svanberg, Hayes second. In distances less than the Marathon, Shrubbs, the English runner, showed the most consistent form of any runner, defeating Dorando, St. Yves, twice, and Longboat.

CURLING. The international curling match for the Gordon medal was won by the United States by the score of 59 to 45. The clubs which represented Canada were the Montreal Caledonians and the Lachine Club. The Utica Curling Club, the Thistles and the Boston Curling Club contested for the United States. Other important matches, nearly all of which were held in Van Cortlandt Lake, N. Y., included: Gordon medal match, won by the Terrace City Curling Club; North against South of

Scotland, won by South; Utica Cup Match, won by the Caledonian Club No. 2; Mitchell Medal Match, won by the Utica Curling Club, and the All-Comers match, won by Paris, Ontario. Of considerable interest to the curling world was the invasion of Scotland by a Canadian team. Twenty-seven games were played, of which the Canadians won twenty-four. The good showing made by the invading team in the home of the game surprised the experts.

CRUELTY TO ANIMALS, AMERICAN SOCIETY FOR THE PREVENTION OF. An institution whose object is sufficiently indicated by its name, founded in 1886. In 1909 there were received by the Society 11,229 complaints of alleged cruelty, resulting in 1956 arrests and prosecutions; 7606 animals were suspended from labor; 2570 horses, mules and other large animals were humanely destroyed; 222,468 small animals, homeless or disabled past recovery, were also destroyed, and disabled horses and other large animals were removed in ambulances. The excess of expenses over income was \$14,830. The Society received in bequests \$21,177, and from members' dues, donations and other sources \$12,149. The president is Alfred Wagstaff, and the secretary, Richard Welling.

CRUELTY TO CHILDREN, NEW YORK SOCIETY FOR THE PREVENTION OF. A society founded in New York City in 1874 for the object indicated by its name. It has authority under the laws of New York State, and during 1908 it received 15,957 complaints and prosecuted 9875 offenders, of whom 8126 were convicted. There were rescued from destitution and vicious surroundings 8548 children, and 8605 received care, food, and clothing at the building of the society. The society investigates all complaints of neglect of children and brings action against offenders. A school of instruction for prospective workers is conducted in the building of the society at 297 Fourth Avenue, New York City. The president in 1909 was John D. Lindsay and the secretary and superintendent, E. Fellows Jenkins.

CUBA. An island and republic of the West Indies. The capital is Havana.

AREA AND POPULATION. The area of the six provinces constituting the republic is (according to recent official figures) 44,164 square miles, of which the island of Cuba occupies (approximately) 41,684 square miles, the Isle of Pines, 1180, and other islands and keys, 1350. According to the census of September 30, 1907, the population was 2,048,980, as compared with 1,572,797 in 1899 and 1,631,687 in 1887. The area and population (1899 and 1907) by provinces are stated as follows:

Province	Area sq. m.	Population	
		1899	1907
Pinar del Rio.....	5,206	170,354	240,372
Havana	3,170	427,514	538,010
Matanzas	3,256	202,444	239,812
Santa Clara	8,257	356,536	457,431
Camagüey	10,064	88,234	118,269
Oriente	14,211	327,715	455,086
Total	44,164	1,572,797	2,048,989

The principal cities of Cuba, with population according to the 1907 census, are: Havana, 297,159; Santiago, 45,470; Matanzas, 36,009; Cienfuegos, 30,100; Camagüey, 29,616; Cárdenas, 24,280; Sancti-Spiritus, 17,440; Santa Clara, 16,702.

EDUCATION. Under American rule the elementary and secondary school systems of Cuba were reorganized. Primary instruction is nominally compulsory. In December, 1906, there were 2149 schoolhouses, 3649 teachers, and 122,214 scholars. Of the teachers 2363 were women and 1286 men, and 3437 white and 212 colored. According to the census of September 30, 1907, children of school age (5 to 17 years) numbered 541,445, of whom 171,017 (31.6 per cent.) had attended school during the year preceding. Of white children of school age, 31.3 per cent., and of the colored children, 32.3 per cent., attended school. More than nine-tenths of all children attending school were under 15 years of age. For secondary instruction there are many schools and institutes. Higher and professional instruction is provided by the University of Havana. In 1907, of the inhabitants 10 years of age and over, 837,958 or 56.6 per cent., were able to read. Of the total population, 40.9 per cent. were able to read, as compared with 36 per cent. in 1899 and 27.7 per cent. in 1887.

AGRICULTURE. Agriculture is the principal industry, and sugar and tobacco are the staple products, but other crops are cultivated, including coffee, cacao, cereals, potatoes and other vegetables, and fruits. Sugar production is reported as follows: 1906-7, 1,441,010 long tons; 1907-8, 969,178; 1908-9, 1,520,226, the largest output recorded for a single year. For 1908-9, the province of Santa Clara was credited with 509,602 tons, Matanzas 362,080; Oriente 335,753, Havana 183,197, Camagüey 98,024, and Pinar del Río 31,570. The 1908-9 output was ground by 169 mills. Sugar refining is confined practically to Cárdenas, where there are three refineries. From sugar-cane are also produced large quantities of molasses, aguardiente, and alcohol.

The tobacco output in 1907 amounted to 440,745 bales; in 1908, 563,959 bales. Of the latter amount Vuelta Abajo produced 261,095 bales; Remedios, 194,929; Partidos, 64,360; Santiago de Cuba, 12,878; Puerto Principe, 5228; and Matanzas, 445. The value of all tobacco produced and manufactured in Cuba in 1908 has been placed at about \$45,000,000.

It is estimated that over 20,000 acres are planted to citron groves, and the 1908 orange

copper, manganese, gold, lead, zinc, asphalt, and salt, but mining has attained only a small development. At present iron mining is the most important of the mineral industries. The brown iron ore deposits, especially those near Nipe and Moa Bay and at Cubitas and Navas were stated in 1909 to promise an addition of 1,000,000,000 tons of ore to the world's supply.

COMMERCE. Imports and exports of merchandise for fiscal years ending June 30 have been valued as follows:

Merchandise	1907	1908	1909
Imports.....	\$ 96,668,889	\$96,993,134	\$83,900,234
Exports.....	110,764,937	97,447,447	115,637,047
Specie			
Imports.....	66,306	1,835,787	2,814,536
Exports.....	4,047,909	14,675,020	1,926,546

The leading imports are food-stuffs (especially cereals and meat), cotton textiles, and iron and steel manufactures.

Tobacco exports for the fiscal year 1909 included 152,908 bales of leaf, against 116,111 bales in 1908; 87,151,904 cigars, against 78,701,912; and 5,802,843 cigarettes, against 7,101,791. The pineapple export aggregated 1,263,466 crates (of 80 pounds) of which 862,844 went to New York, 207,613 to New Orleans, and 114,807 to Mobile. Through Havana there were exported 204,603 crates of tomatoes, eggplants, peppers, etc., 24,348 crates of oranges and grapefruit; 16,257 crates of onions; besides potatoes and other vegetables and fruits.

For the calendar year 1908 the imports and exports of merchandise were valued at \$85,218,391 and \$94,603,324 respectively. The tobacco export was valued at \$31,056,922 (against \$28,645,909 in 1907), including: Leaf tobacco, \$39,771,818 pounds, valued at \$18,354,420 (26,050,783 pounds went to the United States); cigars, 188,846,784, valued at \$12,275,041; cigarettes, 10,202,896 packages, valued at \$295,884; cut leaf, 353,010 pounds, valued at \$131,576. In 1907 the sugar export was valued at \$69,554,419; molasses, \$921,312.

The imports and exports of Cuba by countries for fiscal years ending June 30 have been as follows:

Countries	1907		1908		1909	
	Imports	Exports	Imports	Exports	Imports	Exports
United States	\$48,192,672	\$98,141,012	\$46,450,908	\$81,715,884	\$42,593,894	\$90,973,369
Other American countries	9,500,962	2,211,504	8,301,268	2,718,605	7,285,289	2,453,336
Great Britain	13,639,130	4,446,225	14,550,912	5,145,571	10,639,462	4,950,040
Germany	6,433,969	3,150,757	7,762,751	3,741,795	6,350,534	4,484,290
Spain	8,286,973	413,305	8,810,910	795,687	7,377,663	1,017,390
France	5,781,608	1,002,520	5,854,474	1,768,742	4,793,469	1,296,441
Other European countries.....	3,424,585	821,672	3,624,223	868,179	3,336,100	960,996
All other countries.....	1,598,996	508,135	1,631,174	692,984	1,523,824	471,976
Total	96,668,889	110,764,937	96,993,134	97,447,447	83,900,234	115,637,057

crop reached nearly 500,000 crates. The 1908 pineapple crop was estimated at over 1,300,000 crates. In the year 1907-8, cacao production amounted to 6,023,700 pounds, as against 9,380,900 pounds in the preceding year. On June 30, 1909, the reported number of live-stock included 2,936,547 cattle, 523,702 horses, 57,310 asses, and 3202 mules.

MINERALS. Cuba has considerable mineral wealth, especially in Oriente, including iron,

Trade conditions during the year were good. There was a great increase in the exports of sugar to the United States in 1909, but the precise figures were not available.

COMMUNICATIONS. On September 1, 1908, the total length of railways in Cuba was 2329.8 miles. Many of the large sugar plantations are connected by rail with the main lines. Several new railways and important extensions are projected. In March, 1909, contracts were made

for extensions in the province of Oriente amounting to about 175 miles, the government to pay a subsidy of \$9600 per mile. The number of post-offices reported is 418, and of telegraph offices, 147, with 5065 miles of line in operation.

FINANCE. Under the provisional government, the revenue and expenditure from September 29, 1906, to June 30, 1907, were \$28,821,963 and \$25,393,840 respectively; for the year ending June 30, 1908, \$34,020,502 and \$44,551,707. The balance in the treasury on September 29, 1906, was \$13,625,540; on June 30, 1908, \$6,522,518; on March 27, 1909, \$2,515,363. The estimated revenue for the year ending June 30, 1908, was \$29,415,163; the estimated expenditure (including \$9,935,341 extraordinary), \$34,220,644. For the fiscal year 1910, the total revenue and expenditure were estimated at \$33,825,449 and \$33,418,303 respectively. Revenue from customs in the fiscal year 1907 amounted to \$26,311,596; in 1908, \$22,231,707.

ARMY. After the withdrawal of the American forces on January 28, 1909, the maintenance of order in Cuba became the duty of the "Guardia Rural," which during the American occupation had been under the supervision of officers detailed from the U. S. Army and had been brought to a high degree of efficiency. The "Permanent" army as organized in 1909 after the departure of the American forces consisted of a general staff; a brigade of two regiments of infantry of three battalions each; two batteries of light field artillery and four of mountain artillery; a machine gun corps of four companies and a corps of coast artillery. The infantry numbered about 2500 officers and men, the field and mountain artillery about 800, the machine gun corps about 500 and the corps of coast artillery about 1000, which, with the band of staff, made a total of about 5000. These forces were being equipped and trained during the year under the direction of three officers from the U. S. Army assigned to special duty at the request of the Cuban government.

GOVERNMENT. Under the Constitution proclaimed February 21, 1901, the executive authority is vested in a president, who is elected indirectly for a term of four years and is assisted by a cabinet of eight ministers appointed by himself and responsible to Congress. The legislative power devolves upon a Congress of two houses, the Senate (24 members, elected indirectly for eight years) and the House of Representatives (64 members, elected by direct vote for four years). The first President of the Republic, Tomás Estrada Palma, resigned his office September 28, 1906, and the United States intervened until new elections could be held. To determine the number of legal voters, the census of September 30, 1907 was taken. In December, 1908, Gen. José Miguel Gómez was elected President, and Alfredo Zayas Vice-President. They were inaugurated on January 28, 1909, when the American Provisional Governor, Charles E. Magoon, withdrew. Each of the six provinces is administered by a governor, elected by popular vote for four years.

HISTORY. In 1908 President Roosevelt had announced that before February 1, 1909, the second American intervention would terminate and the government of the island be turned over to its own officers. On January 1, 1909, the American troops began to withdraw. As a result of the elections of 1908, General José Miguel Gomez was elected President and Dr.

Alfredo Zayas Vice-President. The Cuban Congress assembled on January 23, after an interval of a little over two years, and, having effected a permanent organization and canvassed the election returns, officially proclaimed the President and Vice-President. On January 28, the American Provisional Governor Magoon turned over the administration to the new executive. This marked the end of the second American intervention, which began on September 29, 1906, when Mr. Taft, then Secretary of War, went to Cuba on the occasion of the revolution against President Palma. Mr. Charles E. Magoon succeeded Mr. Taft in carrying out the work, being appointed Provisional Governor on October 13, 1906. The most important of the early appointments by the new President was that of General Pino Guerra as commander-in-chief of the permanent army. He proceeded to put into effect a plan for military reorganization. A disturbance occurred in the rural guard in the province of Santa Clara, but by the middle of March it had subsided. Congress passed an amnesty measure applying to all persons except those convicted of "unnatural crimes"; a law authorizing the President to suspend at his discretion the duties on the exports of sugar, tobacco and liquors, which had been imposed by President Palma for the purpose of raising the interest on the loan of \$35,000,000 for the payment of the troops; laws authorizing cock fights and establishing a national lottery, and a law authorizing the introduction of long distance telephones. A measure, much discussed in the newspapers, prohibiting further purchase of Cuban land by aliens, was defeated. Congress adjourned before agreement on the budget was reached and President Gomez was obliged to provide for the situation by a decree declaring the budget of last year in effect. The earliest measure passed by the Cuban Congress was declared unconstitutional by the Supreme Court. The cost of the second American intervention was estimated at \$6,000,000.

The chief criticism brought against the first year of the independent Cuban administration was that of extravagance, and the carrying of too many officials on its pay-rolls, and President Gomez was blamed for not taking a firmer stand against the place hunters. The finances, however, were brought into better condition, although the year began with practically an empty treasury and heavy obligations and contracts. On presenting the budget on November 15, President Gomez announced that there was a surplus of \$4,000,000 in the treasury.

CUMBERLAND PRESBYTERIAN CHURCH. A religious denomination, organized in 1810. In 1903 a movement was begun to merge the Cumberland Presbyterian with the Presbyterian Church in the United States of America. This effort culminated in 1906, in a vote of the majority in the Cumberland Assembly to adjourn *sine die* as a separate Assembly. A large majority of those commissioners who opposed the proposed union, emphasized their protest by continuing, as they claimed, the work of the Cumberland Assembly, thus ignoring the majority vote. It is claimed by those who voted for the union that the church had been merged with the Presbyterian Church of the United States of America, and that the Cumberland Presbyterian Church, as it was composed, prior to 1906, does not exist.

That body which refused to accept the union, on the other hand, claimed that the Cumberland Presbyterian Church was not a new organization, but was a continuation of the same church, organized in 1810, notwithstanding the exit of nearly one-third of its membership and two-thirds of its preachers who joined the Presbyterian Church of the United States of America.

Litigation was carried on in 1908-9 to determine the disposition of the property involved. During 1909 Supreme Court decisions favorable to the unionists in Kentucky and Texas were made, both of which courts held in effect that a civil court could not review the acts of an ecclesiastical court. Supreme Court decisions favorable to the Cumberlands in Tennessee and Missouri were made. Both of these went into the merits of the case, and declared the union null and void on account of doctrinal differences between the two churches; also on account of the want of expressed constitutional authority to form such union. The Appellate Court of Indiana gave a sweeping decision in favor of the Cumberland Presbyterians and declined application for a re-hearing. The Cumberland Presbyterians also gained two suits in two United States District Courts in Tennessee as against no decisions gained in any United States District Court by the unionists. Supreme Court decisions are pending in California, Illinois and Mississippi. The 79th General Assembly of the Church convened at Bentonville, Arkansas, from May 20 to 26, 1909, with an increased representation. The 80th General Assembly will convene near the birthplace of the Church at Dickson, Tennessee, in May, 1910. About 100,000 communicants and 600 preachers remained in adherence to the Cumberland Presbyterian Church.

CUMMINS, ALBERT BAIRD. An American public official, United States Senator (Republican) from Iowa. He was born at Carmichaels, Pa., in 1850. He was educated at Waynesburg College and Cornell College, Ia. He studied

for by the bill passed by the Senate. He has long been a strong political power in Iowa and was the leader of the radical element which opposed the more conservative branch of the Republican party of the State headed by Senator Allison.

CUBAÇAO. A Dutch West Indian colony, comprising the islands of Curaçao, Buen Ayre, St. Eustache, Saba, and the southern part of St. Martin (the northern part belonging to France). Total area, 436 square miles, about half of which is comprised in the island of Curaçao; population at the end of 1906, 52,758, of whom 30,401 were residents in Curaçao. Willemstad, the capital, has about 14,000 inhabitants. In 1907 Roman Catholics numbered 45,452, and Protestants 6672. The leading products are corn, beans, sugar, tobacco, and phosphate of lime. In 1906 the imports and exports of the island of Curaçao were 3,152,584 florins and 493,000 florins, respectively (1 florin equals 40.2 cents); exports of the entire colony amounted to 1,034,016 florins. The revenue for 1909 was estimated at 640,970 florins, and the expenditure 935,152 florins, the deficit being supplied by the Netherlands.

CURRENCY. The problem of currency reform received continuous discussion through the year, but very little that was new was developed. The Aldrich-Vreeland act of 1908, providing for an emergency currency, was severely criticised on the ground that its benefits could be utilized only after a severe money stringency had set in, and not as a preventive to such stringency. While prominent bankers were not less inclined than previously to emphasize the necessity of introducing elasticity into the currency system, there was a tendency to make this a part of the larger problem of organizing the nation's banking credits. See CENTRAL BANK.

An inquiry made for the National Monetary Commission showed the money held by national banks and all other reporting banks on April 28 to be as follows:

Classification	National banks (6,893)	All other banks (15,598)	Total all banks (22,491)
Gold coin	\$151,366,529.52	\$ 75,499,867.50	\$226,866,397.03
Gold certificates	375,668,480.00	207,039,340.00	582,707,820.00
Silver dollars	11,869,927.00	10,697,159.00	22,567,086.00
Silver certificates	124,348,526.00	55,250,744.00	179,609,270.00
Subsidiary and minor coins	19,212,159.29	13,699,181.22	32,911,340.51
Legal-tender notes	198,898,210.00	72,895,792.00	271,794,002.00
National bank notes	45,413,071.00	68,125,023.00	113,538,094.00
Cash (not classified) .....	.....	22,020,666.80	22,020,666.80
	\$926,776,902.82	\$525,237,773.52	\$1,452,014,676.34

surveying and became chief engineer of the Cincinnati, Richmond and Fort Wayne Railroad. After carrying on the study of the law he was, in 1874, admitted to the bar. He practiced law in Chicago from 1874 to 1878, and in the latter year removed to Des Moines, Ia. In 1878 he was a member of the Iowa Legislature, and was an unsuccessful candidate for the United States Senate in 1894 against Senator Allison. He was a member of the Republican National Committee from 1896 to 1900, and was elected Governor of Iowa in 1902-4, 1904-6 and 1906-8. Senator Cummins was one of the most aggressive of the "insurgent Senators" who advocated a lower tariff revision than that provided

This cash was distributed by geographical divisions as follows: New England, 6.11 per cent.; Eastern States, 49.59 per cent.; Southern States, 7.33 per cent.; Middle Western States, 25.85 per cent.; Western States, 4.92 per cent.; and Pacific States, 6.2 per cent. Of the aggregate cash New York banks held 39 per cent.; Illinois banks, 10 per cent.; and Pennsylvania banks, 8 per cent. California banks held \$33,859,000 in gold coin, as compared with \$19,800,000 in gold coin held by Pennsylvania banks, \$17,489,000 by Illinois banks and \$16,368,000 by New York banks. More than 60 per cent. of the gold certificates were held by New York banks, as were also 37

per cent. of the silver certificates. Texas banks held the greatest amount of silver dollars, \$1,938,000; but New York banks held one-third of all the legal-tender notes.

The ratio of total cash to total deposits was 10.34 per cent., being 19.2 per cent. for national banks, 9.2 per cent. for State banks, 8.97 per cent. for loan and trust companies, 5.74 per cent. for private banks, and .88 per cent. for savings banks. See **NATIONAL BANKS** and **CENTRAL BANK**.

CURRIE, SIR DONALD. An English ship-owner, died April 13, 1909. He was born in Greenock, Scotland in 1825. He was in the service of the Cunard Line until 1862, when he founded the Castle Line between Liverpool, London and the East Indies. In 1873 he established a steamship line to South Africa, which in 1900 was amalgamated with the Union Line, forming the Union-Castle Mail Steamship Co. He was knighted in 1881 for services in transporting troops to South Africa during the Zulu war. Sir Donald sat in Parliament from 1880 to 1900. He was considered one of the greatest authorities on South African affairs.

CUSHMAN, FRANCIS W. A Representative (Republican) to Congress from Washington, died July 6, 1909. He was born at Brighton, Iowa, in 1867, and was educated chiefly in the public schools. On the completion of his school course he worked as a "section hand" on a railroad. At the age of sixteen he removed to Wyoming, where he remained for five years, working on a cattle ranch, in lumber camps, teaching school and studying law. He removed to Nebraska, and, having been admitted to the bar, practiced law in that State. In 1891 he removed to Washington, and engaged in the practice of law in Tacoma. He was elected to Congress for six successive terms, beginning with the Fifty-sixth Congress. Mr. Cushman was one of the ablest debaters in the House, and was noted for his brilliant wit, and his quickness at repartee. He was a member of the Ways and Means Committee.

CUST, ROBERT NEEDHAM. An English colonial official, died October 28, 1909. He was born in 1821 at Cocayne Hatley in Bedfordshire, and was educated first at a private school and afterwards at Eton. The offer of an appointment in the Indian Civil Service, led to his going subsequently to an East Indian college at Haileybury. In 1842 he went to India and in 1844 was appointed assistant to the Governor-General's Agent on the Northwestern frontier. He took an active part in several of the campaigns against the Sikhs and in 1845 he was appointed district officer of one of the newly annexed provinces. In 1852 he was appointed joint magistrate at Benares, and subsequently became magistrate and collector of Banda. After having been admitted to the bar and having served in several important positions, he became, in 1860, financial commissioner of the Punjab and in 1862 he became judicial commissioner of the Punjab. He accepted a seat in the Legislative Council and was appointed to act for three months as Home Secretary of the Government of India. In 1866, after returning to England, he accepted the post of a member of the Board of Revenue in the Northwestern provinces and returned again to India. He drew up a code of

revenue law for India which was published in 1870. He served as vice-president and honorary secretary of the Royal Asiatic Society and as a member of many other societies. He did important work in behalf of Christian missions and in connection with the dissemination of the Bible in foreign tongues.

CUSTOMS COURT. See **TARIFF**, and **UNITED STATES**, paragraph *Tariff*.

CUSTOMS FRAUDS. See **UNITED STATES**, and **TRUSTS**.

CUYLER, THEODORE LEDYARD. An American Presbyterian clergyman, died February 26, 1909. He was born in Aurora, N. Y., in 1822, and graduated from Princeton University in 1841, and from the Princeton Theological Seminary in 1846. He was ordained in 1848, and after several pastorates was called, in 1860, to the Lafayette Avenue Presbyterian Church in Brooklyn. There he remained until 1890, when he resigned to enter upon a ministry at large. Dr. Cuyler was throughout his life prominent in public life. He assisted actively in organizing the Republican party in 1856, and took a foremost part in many political and social reforms. He was of that notable group of Brooklyn clergymen which included Henry Ward Beecher and Dr. R. S. Storrs. Dr. Cuyler was a voluminous writer on many subjects. His autobiography entitled, *Recollections of a Long Life—An Autobiography*, was published in 1902 and forms a very interesting and valuable record. He wrote 4000 articles for religious papers, many of them translated into foreign languages.

CYPRUS. A Levantine island, nominally a part of the Ottoman Empire, but occupied by Great Britain under the Convention, of June 4, 1878. Capital, Nicosia, with 14,752 inhabitants. Area, 3584 square miles. Population in 1901, 237,022; estimated population in 1907, 256,433, of whom 182,739 were Greek Christians, and 51,309 Mohammedans. The elementary schools in 1907-8 numbered 545 (182 Moslem and 363 Christian), with 27,529 pupils (5298 and 22,231). There are five high schools and a gymnasium. The soil is proverbially fertile, and the chief occupation of the people is agriculture. The yield of the chief crops in 1907 was as follows: Barley, 2,906,755 bushels; wheat, 2,600,839; oats, 334,374; vetches, 156,156. Cotton, olives, grapes, carobs, fruit, linseed, silk, wood, hides, and origanum oil are also produced. In 1898 there were 62,174 horses, mules, and asses, and 47,242 cattle; and in 1907 258,960 sheep and 239,450 goats. Irrigation works were completed in 1901. The sponge fisheries are remunerative. Copper and asbestos are mined; gypsum, terra umbra, and marble are found in quantity. The total imports and exports, inclusive of specie, in 1908 amounted to £618,781 and £653,589 respectively, against £702,893 and £635,055 in 1907. Imports from Great Britain (1908), £158,325; exports, £154,861. The wine export in 1908 was 887,545 gallons (nearly all to Egypt), and that of spirits 49,230 gallons (to Turkey). A narrow-gauge railway connecting Famagusta with the capital (36 miles), opened in 1905, has been extended to Morphou, a total of 60 miles. The harbor at Famagusta has been rendered accessible to steamers. There is regu-

lar steamship service from Egypt. There are 746 miles of highways, and 240 miles of telegraph lines. A cable connects with Alexandria. The shipping entered and cleared in 1907 aggregated 844,320 tons. The revenue and expenditure for three successive years was as follows: 1906-7, £286,873 and £182,066; 1907-8, £311,810 and £203,029; 1908-9, £303,477 and £244,061. Public debt, £309,000, for harbor, railways, and irrigation. The sum of £92,800 and 4,166,220 okes of salt are payable annually to the Sublime Porte under the Convention of 1878. The annual grant from Imperial funds to the revenue was (1907-8) £50,000. The Imperial Ottoman Bank has a branch in Cyprus. The government is administered, under the Colonial Office, by a high commissioner, assisted by a legislative council. The High Commissioner in 1909 was Sir Charles Anthony King-Harman.

Owing to the election of the new archbishop by civil instead of canon law some fighting was reported in March at Limasol on the occasion of his installation.

CYCLING. The professional sprint championship in 1909 was again won by F. L. Kramer, who scored a total of 42 points. A. J. Clarke was second with 36 points and J. A. Fogler, third, with 19 points. The contest for first honors between Kramer and Clarke was the feature of the cycling season. E. L. Collins won the professional paced championship, scoring a total of 79 points; J. F. Moran was second with 40 points. The amateur championship went to P. O. Lawrence, who made a total of 17 points; J. Magin finished second only 5 points behind Lawrence. The 100-kilometre world's professional paced championship match, held at Copenhagen, Denmark, was won by Georges Parent in 1 hour, 35 minutes and 45½ seconds. François Cuzin at Munich established a new amateur record for one hour (motor paced), going 56 miles, 1128 yards. The same rider also covered the 100 kilometres in 1 hour, 5 minutes and 45½ seconds. R. Duer at Los Angeles, Cal., made new paced records, against time, for all distances between 1 and 10 miles inclusive, his time being: 1 mile, 1 minute 5 seconds; 2 miles, 2 minutes 9½ seconds; 3 miles, 3 minutes 14½ seconds; 4 miles, 4 minutes 18½ seconds; 5 miles, 5 minutes 23½ seconds; 6 miles, 6 minutes 28½ seconds; 7 miles, 7 minutes 33½ seconds; 8 miles, 8 minutes 38½ seconds; 9 miles, 9 minutes 45½ seconds; and 10 miles, 11 minutes 6½ seconds. In the half-mile the new record of 39 seconds was made by W. Samuelson. New unpaced records, against time, were made by E. A. Pye, who rode 2 miles in 4 minutes 3½ seconds; by W. Samuelson, who covered 3 miles in 6 minutes 18 seconds, and by S. Williams, who rode 4 miles in 8 minutes 34½ seconds and 5 miles in 10 minutes 38 seconds. In professional competition new records were made in the 2-mile (3.40½), and 5-mile (9.42½), by I. Lawson; the 15-mile (33.16), by P. Drobach; the 20-mile (44.45½), by F. Hill; and the 25-mile (56.21), by A. J. Clarke. In amateur competition the only new record made was in the 5-mile, by E. Mayer, who rode the distance in 10 minutes 11½ seconds. The annual six-day race held in Madison Square Garden, New York, December 6-11, judging from the attendance and enthusiasm, is gaining in popularity. The event for the first time was won by a team composed of riders who had lost their original partners through accident, and

who accordingly had been penalized one lap. Rutt and Clarke won from Root and Fogler by one lap. The distance covered by the leaders, 2660 miles 1 lap, was 77 miles behind the record made by McFarland and Moran in 1908.

DAHOMY. A French colony in French West Africa (q. v.). Area, 37,527 square miles. Population (1906), 748,999. The natives are of pure Negro stock, and belong to the Fon branch of the Ewe family. In 1906 there were 8 government and 15 mission schools, with a total of 2600 pupils. The natives are industrious agriculturists and grow corn, manioc, yams, and potatoes. The forests contain baobab trees and cocoanut and oil palms. Total imports (1907), 11,655,312 francs; exports, 9,670,983 francs. Total railway lines open (1908), 192 miles; under construction, 125 miles. There are few roads. There are 1725 miles of telegraph and 120 miles of telephone lines, and 25 post-offices. In 1907, 390 vessels of 504,960 tons entered, and 391 of 506,724 tons cleared at the ports. The local budget (1904) balanced at 5,549,550 francs. The Lieutenant-Governor (H. Malan, in 1909), is under the direction of the Governor-General of French West Africa.

DAIRYING. The dairy industry of 1909 differed in no essential particular from the previous year. In the United States the price of milk, butter, and cheese has remained about the same, being uniformly higher during the past two years. The drought in some of the Eastern States and the high price of feeding stuffs have materially increased the cost of production. The increased cost of feeds of the past few years has led to the more extensive growing of crops to take their place.

The National Dairy Show, held at Milwaukee, Wis., in the fall, exceeded all previous exhibitions in size and in educational value. The dairy stock included representatives of all the principal dairy breeds, besides a special class for grades. The student dairy stock judging contest was participated in by teams from seven colleges. A number of meetings of dairy associations were held in connection with the show. The dairy exhibit at the Alaska-Yukon-Pacific Exposition in Seattle was of considerable importance. Special features connected with it were a model creamery in operation and a model dairy barn.

The State and National dairy shows and the recently-formed Cow Testing Associations have helped to improve dairy stock. National and local dairy officials have been encouraging dairymen to keep records of individual cows in order to detect and eliminate the unprofitable individuals. The Indiana Experiment Station in coöperation with the Erie Railroad ran a milk production special over the Erie lines in Indiana to furnish information to dairymen. The train was equipped by the railroad and the Experiment Station furnished lecturers and distributed printed matter. This educational work aids materially to increase the total production of milk even without a large increase in the number of cows.

During the past twenty-five years there has been a wonderful development in the condensed milk industry, which began in the United States in 1856. In 1880 13,000,000 lbs. were made, in 1890 33,000,000, in 1900 187,000,000, in 1909 nearly 500,000,000 lbs. The exports amount to about 25,000,000, the imports to 7,000,000 lbs. annually. In many places where condensed milk

factories have been erected increased prices of milk result and business is taken away from cheese factories and creameries. The consumption of condensed milk is constantly increasing in Brazil, India, Siam and other tropical countries. In Japan the imports increased from 173,467 dozen cans in 1899 to about 1,000,000 cans in 1909, one-half of which came from the United States. In Mexico and the South American countries there are good fields to increase the trade.

The dairy industry in Canada is steadily growing, although the exports of dairy products are on the decrease, owing to a larger home consumption. The exports of butter have fallen from 34,128,944 lbs. in 1903 to 6,326,355 lbs. Exports of cheese, bacon and ham have declined. The former rate of duty in the United States on separator cream was 20 per cent. ad valorem, while under the new tariff law the rate is reduced to 5 cents per gallon. This change has resulted in an extensive importation of cream instead of butter from Canada. The duty on butter is 6 cents per pound, but by importing the cream the duty is reduced to about 2 cents a pound. Canadian creameries along the frontier find it advantageous to export their entire product of cream to be manufactured into butter at creameries across the United States border. In Alberta the dairy industry is progressing rapidly, especially the manufacture of butter, which has increased 70 per cent. in the past two years. Much of this increase has been made during the winter months. The entire output, which reached 2,550,000 pounds the past year, is disposed of in British Columbia and the Yukon district.

A notable event in European dairying was the fourth International Dairy Congress, held at Budapest, in June. The Congress was opened by the patron Archduke Joseph, with over 1000 delegates in attendance. Many interesting and valuable papers were presented on the different lines of work connected with dairy husbandry, milk hygiene and the inspection of milk. The programme also included many excursions to typical dairy farms and milk depots in the vicinity. The next congress will be held in Stockholm in 1911.

In nearly all European countries the amount and value of dairy products are increasing, although hardly keeping up to the increase in population. Denmark continues to be the most progressive dairy country, largely because of the coöperative dairies which were first organized in 1882 and now number 1100 with 160,000 members. The milk from nine-tenths of the cows in that country is sent to these coöperative dairies, which return better prices to the dairyman than he was able to obtain before they were formed. Germany is a large importer of dairy products in spite of the increase in home production of milk. The dairy industry is growing in South Africa and Australia, but there are few signs of progress in South American countries.

The most significant feature in dairying in nearly all countries is the campaign for clean milk, which is a part of the general movement for pure food of all kinds. Unsanitary milk is a great menace to human welfare; the danger of contracting disease is much greater than from meat, because milk, cream, and butter are commonly consumed in the raw state. In the past the sanitary conditions under which milk and its products have been produced were often bad. Improvement has been brought about by

the activity of government officials, physicians, and the formation of Medical Milk Commissions in many of the large cities. These agencies encourage the dairy farmer to improve the quality of his milk by offering to those who desire it information on improving equipment and methods. Tests and bacterial counts of milk are made and all milk coming within the requirements means eventually higher prices to the dairyman who is willing to produce a clean and wholesome product.

The drastic milk ordinance of Chicago, requiring that all milk not from tuberculin-tested cows must be pasteurized, has been in effect one year and has resulted in improving the quality of the milk, although there has been some fraud in connection with the tuberculin testing. Veterinarians have made false reports, and farmers have immunized their cows preparatory to the test. It has been found easier to control the pasteurizing than the tuberculin testing. Studies of pasteurizing plants in Chicago and in Boston show that it is not always properly done and should be under strict supervision. At best, pasteurization is a necessary evil and often means cooked dirt and cooked bacteria. Samples of commercially pasteurized milk showed that bacteria multiplied four times as fast in the pasteurized milk as in the unpasteurized. The ideal to be aimed at in milk production is better sanitary conditions in the cow stable and more care in handling the milk. A new regulation of the Boston Board of Health forbids the selling of bulk milk in retail stores, in order to prevent contamination of milk after it leaves the farm. In some places instances of watering milk have been found under the guise of ice placed in the can to cool the milk.

Dr. A. F. Hess has studied the health of children of New York City known to have used milk that contained virulent tuberculous germs of the bovine type. Though they seemed to be in average health, one-fourth of them reacted to a conjunctival tuberculin test, from which it is argued that the bovine type of tubercle bacilla, although less virulent, are capable of infecting human beings, and that all milk coming from suspected cows should be pasteurized under competent supervision. The health department of the city of Birmingham, England, have begun the fight against the spread of tuberculosis by supplying dairy farmers within ten miles of the city with free tuberculin and veterinary assistance for testing their cows. During the first five months of the existence of the Lady Talbot Milk Institute at Melbourne, Australia, which was established to reduce the death rate of infants by supplying sanitary milk, only 8 out of 300 infants supplied died, a remarkable showing, as the majority when first put on the milk were already suffering from troubles caused by impure milk.

A number of new patents have been granted for methods of making dried milk, a product that may become commercially of importance in a few years. Methods have been devised for sterilizing milk by means of electricity and by ultra-violet rays, without subjecting the milk to high temperatures. Paper milk bottles have been used for several years and their practicability established so that their use is on the increase. The New York Milk Committee recently decided to use them at their infant milk depots.

Many investigations have been carried on at

the State experiment stations connected with the manufacture of butter and cheese, the bacteriology and chemical composition of milk, and the economics of dairying. Experiments conducted by the National Department of Agriculture have shown that acid in cream causes great changes in the flavor of butter, and that the troublesome "fishy flavor" occurs only in highly acid butter and sometimes only when it has been overworked. A special study of the manufacture of Camembert cheese in the United States has shown that the unfavorable climatic conditions in many places where factories have been located can be overcome by constructing factories in such a manner as to control humidity, temperature, and ventilation.

Among the important books on dairying published during the year are: A. Sommerfeld, Wiesbaden, *Handbuch der Milchkunde*; L. L. Van Slyke and C. A. Publow, New York, *The Science and Practice of Cheesemaking*; B. Martiny, Leipzig, *Geschichte der Rahmgewinnung*.

DAMS. The great Gatun Dam for the Panama Canal, the construction of which was begun in 1908, continued in 1909 to be a subject of much discussion by engineers. By a few the design of the great structure was criticized, but the consensus of opinion expressed by the majority of engineers who had examined the question and given careful consideration to this kind of engineering was that the project was most feasible and its execution would be attended by success. Work on the Gatun Dam progressed during the year (see PANAMA CANAL), and at its close rapid progress was being made. Other important dam construction in the United States was in connection with the new Catskill Water Supply for New York City, as great reservoirs were required at Ashokan on Esopus Creek and at Kensico and Hill View on the eastern side of the Hudson. The Ashokan Reservoir, which is to contain some 128,000 million gallons of water, is formed by dams aggregating 5.1 miles in length, and of these the largest is the Olive Bridge Dam, which is 4850 feet in length on top and contains a central masonry quartz section 1000 feet in length, with a maximum height above the lowest foundation excavation in the rock of 240 feet. It will have a minimum thickness at the top of 23 feet and its top 20 feet above the full level of the reservoir. It is of cyclopean masonry, and faced on both sides with cast concrete blocks. The Kensico Dam is also a massive structure of somewhat similar character. In the West, the completion of the Laguna Dam on the Colorado River, a part of the Yuma Irrigation Project and the high Pathfinder Dam on the North Platte River in Wyoming, were notable achievements of the U. S. Reclamation Service. The former was a concrete structure, while the latter was of rubble cyclopean masonry, 218 feet in height and 500 feet in length on the top. During the year the great Roosevelt Dam near Phoenix, Ariz., was brought nearly to completion. It is a masonry structure 1080 feet in length by 284 feet in height. Two important earth dams were under construction in the United States during the year, one the Arrowhead Dam, forming the Arrowhead Reservoir in California, being the highest earth dam ever designed. It is 200 feet in height from the ground, or 220 feet from the bottom of the concrete core wall, and has a width on top of 20 feet, the slope being $2\frac{1}{2}$ to

1 on the water side and 2 to 1 on the earth side. It was being constructed by discharging the material from side-tipping cars and then using powerful hydraulic jets to wash it into place. It was originally proposed to construct the dam by hydraulic filling, sluicing the material into place, but this was abandoned for the method described. The Standley Lake Dam, near Denver, Colo., was the second notable earth dam of the year. It is 140 feet high and 20 feet wide on top, the slopes being 2 to 1. The construction consisted in depositing material from temporary timber trestles and forming a series of embankments of increasing height toward the centre of the dam. By admitting water in the spaces between successive embankments the material was thoroughly consolidated and the discharges from the construction cars run out on the trestles were thoroughly spread over the banks.

A dam which it was said would form the largest water storage reservoir in Europe was in course of construction during the year between Soesb and Arnberg, western Prussia, in the valleys of the Helve and Möhne. It is 131 feet in height from the ground level and 2083 feet in length, backing up water over an area of 2510 acres, or nearly four square miles, and forming a reservoir with a capacity of over 30,800 million gallons. The cost of construction in addition to the land was estimated at about \$5,000,000, and the work required the temporary diversion of the two rivers. The water not only will form a storage supply, but advantage will be taken of the head to maintain a hydroelectric station, which should develop about 2000 horse-power.

The Esneh Barrage, constructed by the Egyptian government across the Nile 100 miles north of the great Assuan, was opened during the year. It is 2868 feet long and consists of 11 large or abutment piers 37 feet $8\frac{1}{2}$ inches in height and 13 feet thick, and 108 smaller piers 6 $\frac{1}{2}$ feet thick, there being 120 openings each 16 feet 5 inches wide. These piers are connected by concrete arches and above is carried a roadway. There is a lock and drawbridge and the passage of water can be controlled by sluices. The object of the barrage is to hold the water of low floods and a maximum head of about 33 $\frac{1}{2}$ feet is sustained. The foundations are enclosed by two lines of cast-iron sheet piling 60 feet 9 inches apart, driven parallel across the river. There is a heavy floor of concrete and stone masonry in the bed of the river and above is riprap protection to prevent scour. The sluices are controlled by two gates each operated by traveling winches.

DANDRIDGE, ELIZABETH (TAYLOR). The daughter of Zachary Taylor, and mistress of the White House during his term as President, died July 26, 1909. She was born near Louisville, Ky., in 1824. She married Col. Wallace Bliss during the Mexican War. He died of yellow fever in New Orleans, and she married, some time later, Philip Pendleton Dandridge. He died in 1881. Mrs. Dandridge was a sister of the first wife of Jefferson Davis.

DANIELL, MOSES GRANT. An American educator and author, died October 18, 1909. He was born in Boston in 1836, and graduated from Harvard College in 1863. He was for three years master of the Everett School, Dorchester, Mass., and for seventeen years master of the

Roxbury High School, Mass. For twelve years he was principal of the Chauncey Hall School, Boston. He gave up active educational work and became connected with the editorial department of Ginn and Co., educational publishers, Boston. He was the author of many Latin and Greek text-books. Among them are, *New Latin Composition* (1889); *Exercises in Greek Composition* (1893); *First Latin Book* (1894); *The New Cæsar* (1898) and *Second Year Latin* (1899). He was prominently identified also with several musical societies. He was for twenty years president of the Boston Handel and Haydn Society.

DANISH ANTILLES, DANISH COLONIES. See DENMARK.

DANISH WEST INDIES. A colony of Denmark, consisting of three islands of the Virgin group in the West Indies lying east of Porto Rico. St. Croix has an area of 84 square miles and a population (1901) of 18,590; St. Thomas, 33 square miles and 11,012 inhabitants; St. John, 21 square miles and 925 inhabitants. The inhabitants are mostly free negroes engaged in the cultivation of the sugar-cane. The former considerable trade with Denmark has fallen off in late years, in 1907 being as follows: Imports, 24,000 kroner (1 krone = 26.8 cents); exports, 30,000 kroner.

DARTMOUTH COLLEGE. An institution of higher learning at Hanover, N. H., founded in 1769. The attendance in 1909 was 1193 students. The faculty numbered 102. The most important event in the history of the college during the year was the retirement of President William J. Tucker on July 15, at the close of the fiscal year, and the taking up of the duties of the position at that time by Ernest Fox Nichols (q. v.), formerly professor of physics at Dartmouth and later professor of experimental science at Columbia University. Dr. Nichols was inaugurated president on October 14, before a gathering of very great distinction, in which more than one hundred institutions of higher learning were represented. During the year the cornerstone of the new gymnasium was laid. The endowment of the college is between \$2,000,000 and \$3,000,000. The library contains 100,000 volumes. There were several important changes in the faculty during the year. The college lost by death Professor William Thayer Smith (q. v.), Dean of the Medical School, who died on September 17. Rev. J. H. Robinson was appointed to the Phillips professorship, which has been vacant since the resignation of Rev. A. W. Vernon in 1906. Professor W. H. Sheldon was appointed professor of philosophy to succeed Dr. H. H. Horn, who resigned to take up work at New York University. Professor C. N. Haskins was appointed assistant professor of mathematics. Professor Herbert D. Foster of the Department of History returned to the college after a sabbatical year in Europe. Mr. J. T. Keady was appointed by the Athletic Council to fill the newly created position of director of athletics.

DARWIN MEMORIAL. During the year 1908 Darwin memorial exercises were held, and others were planned for 1909 to commemorate the one hundredth anniversary of Darwin's birth, and the fiftieth of the appearance of the *Origin of Species*. Exercises of this sort were held by a large number of educational institutions and learned societies all over the world.

Of especial interest were the series of lectures on Darwinism given in South Africa by Professor J. A. Thompson, of the University of Aberdeen, and special meetings held at Baltimore on January 1 by the American Association for the Advancement of Science, and by Cambridge University during the last week in June. At the former, addresses were made by Professor E. B. Poulton of Oxford University, and by a number of eminent American students of evolution. These addresses have been published under the title of *Fifty Years of Darwinism*.

At Cambridge, the exercises were under the immediate direction of Christ College, in which Darwin was at one time a student. Delegates from foreign countries were formally welcomed as guests of the University by the Chancellor, Lord Rayleigh, on the afternoon of June 22. On the following day, addresses were made by Lord Rayleigh and by Professors Oscar Hertwig, Elié Metschnikoff, Henry F. Osborn, and Sir E. Ray Lankester. Professor Osborn, on behalf of the American delegates, presented to Christ College a bronze statue of Darwin by Couper, a replica of one in the American Museum of Natural History in New York City. Other meetings were held on the two following days, at which addresses were made, and degrees conferred. A volume of important essays, under the title of *Darwinism and Modern Science*, has been published in connection with this commemoration.

DAVIDSON, JOHN. An English poet and playwright, died by his own hand, in March or April, 1909. He was born at Barrhead, Renfrewshire, Scotland, in 1857, the son of an evangelical clergyman. His formal education was limited to one term (1876-7) at Edinburgh University. At thirteen years of age he entered the chemical laboratory of a sugar house at Greenock. From 1877 to 1889 he was engaged in teaching in various Scottish schools and colleges. In 1890 he went to London. He first came prominently before the public as a poet with the publication of *Fleet Street Eclogues*, in 1893, although he had previously published several volumes. These early works showed originality, charm, and power, especially in the ballad form. His first play was *Godfrida*, published in 1898. Davidson, always something of a radical, became more pronounced in this direction in his last years. He published a series of remarkable "documents," called "Testaments," in which he set forth his doctrine,—an "untempered realism and a kind of mad Nietzscheism." In these productions there was little exercise of his undoubted poetic talents. In addition to those noted, his chief productions were *New Ballads* (1896); *The Last Ballad and Other Poems* (1898); *The Testament of an Empire Builder* (1902); *The Testament of a Prime Minister* (1904); *Selected Poems* (1904); *The Theatrocrat* (1905); *Fleet Street* (1909). He was the author also of a fine adaptation of Coppelée's *Pour la Couronne*. Davidson disappeared on March 23, leaving a note which implied suicide. His body was found floating in the sea near Penzance on September 18, 1909.

DAVIS, MARY EVELYN (MOORE). An American writer, widely known by her pen-name, "Mollie E. Davis," died on January 1, 1909. She was born at Talladega, Ala., in 1852.

Among her published works are: *Minding the Gap, and Other Poems; Under the Man-Fig; Under Six Flags; The Wire Cutter* (1899); *The Queen's Garden* (1900); *The Price of Silence* (1907).

DE ARMOND, DAVID A. An American public official, Congressman from Missouri, died November 23, 1909. He was born in Blair county, Pa., in 1844, and was educated in the common schools and at the Williamsport-Dickinson Seminary. He removed to Missouri and practiced law at Butler in that State. He was elected to the State Senate and became a circuit court judge and supreme court commissioner of Missouri. In 1884 he was a Presidential elector. From 1892 to 1909 he was a member of Congress from the Sixth Missouri District. Mr. De Armond was one of the most conspicuous of the Democratic members of the House. In 1907 there was a movement to promote him to the party leadership to succeed John Sharp Williams. He was one of the most active of those in opposition to Speaker Cannon. Mr. De Armond came to his death by the burning of his residence, perishing with his grandson, whom he was trying to rescue.

DEATH RATE. See VITAL STATISTICS.

DELAWARE. One of the North Atlantic Division of the United States, and one of the thirteen original States. The total area is 2370 square miles, of which 1965 are land and 405 square miles water. Its population in 1900 was 184,700. According to the Federal estimate made in 1909 the population in that year was 199,353. The capital is Dover.

MINERAL PRODUCTION. The State is not notable for its mineral products, the most important of which is clay, which was produced in 1908 to the value of \$146,527, as compared with \$190,440 for the product of 1907. Granite is also produced. Among other mineral products are coal-tar, illuminating gas, coke, sand and gravel and sand-lime brick. The value of the mineral products of the State for 1908 was \$382,502, as compared with a value of the product in 1907 of \$431,438.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the important farm crops of the State in 1909 were as follows, according to figures of the United States Department of Agriculture: Corn, 6,200,000 bushels, valued at \$3,596,000, from 200,000 acres; winter wheat, 1,652,000 bushels, valued at \$1,718,000, from 118,000 acres; oats, 102,000 bushels, valued at \$49,000, from 4000 acres; rye, 14,000 bushels, valued at \$10,000, from 1000 acres; buckwheat, 40,000 bushels, valued at \$24,000, from 2000 acres; potatoes, 864,000 bushels, valued at \$622,000, from 9000 acres; hay, 109,000 tons, valued at \$535,000, from 109,000 acres. The State is favorably situated for market gardening, and there are produced annually about 20,000,000 quarts of berries of various sorts. Apple-growing has become the most profitable branch of fruit-growing in the State, and the canning industry is an important feature of the agriculture of the State. The number of farm animals has remained constant in recent years. The wool clipped in 1909 was 55,272 pounds.

FISHERIES. The value of the products of the fisheries of the State for the year ending December 31, 1908, was \$541,200. Of these the largest product in point of value and amount taken was in menhaden. Of this 59,815,400 pounds

were caught, valued at \$151,790. Next in order of importance was oysters, of which 154,600 bushels, with a value of \$111,990, were taken. Of oysters for seeding purposes, 193,200 bushels, valued at \$56,620, were caught. Following these in order of importance were squeteague or sea trout, 2,590,000 pounds, valued at \$29,190; shad, 869,800 pounds, valued at \$67,860; crabs, 3,178,300, valued at \$13,390. Among other fish taken in the State were striped bass, 52,500 pounds, carp, 132,800 pounds, and catfish, 150,700 pounds. Muskrat skins were also taken to the number of 76,069, valued at \$23,530. There were 65 vessels employed in the fisheries of the State, valued at \$279,565. The number of independent fishermen was 853, and the wage-earning fishermen employed numbered 903.

FINANCE. The report of the State Treasurer showed a balance in the treasury on January 14, 1908, of \$118,157. The receipts from January 14, 1908, to January 5, 1909, were \$722,170. The disbursements for the same period were \$840,327, leaving a balance in the treasury on January 5, 1909, of \$147,042. There were received in the general fund \$557,426 and there were disbursed \$496,991. The school fund amounted to \$944,407. The State debt on January 5, 1909, amounted to \$816,785.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the Delaware Industrial School for Girls; St. Michael's Day Nursery and Hospital for Babies; Delaware Society for the Prevention of Cruelty to Children; the Old Folks' Home at Dover, and the Delaware State Hospital at Frankfort. Appropriations made for the support of these institutions in 1909 were as follows: The Delaware Industrial School for Girls, \$3000; St. Michael's Day Nursery and Hospital for Babies, \$500; Delaware Society for the Prevention of Cruelty to Children, \$900; Old Folks' Home at Dover, \$2000; Delaware State Hospital at Frankfort, \$65,000. In addition, there were appropriated to purchase books for the blind, \$100; for deaf, dumb, blind and idiotic children, \$11,200; for the Delaware Commission for the Blind, \$1500; and for the Delaware State Tuberculosis Commission, \$15,000. The appropriation for deaf, dumb, blind and idiotic children is made to support such children outside of the State, there being no such institution in Delaware. The Delaware State Hospital is wholly supported by the State, and the appropriation for the blind covers all the expenses of their support, but in all other institutions there is private assistance. The State appropriation covers but a part of the requirements of the other institutions.

POLITICS AND GOVERNMENT. On March 1, the bill to resubmit the question of the licensing of the manufacture and sale of intoxicating liquors in rural New Castle County, which is now a license district, passed the General Assembly by a vote of 13 to 1. The bill was signed by Governor Pennewill. In 1907 two of the three counties in the State voted to do away with license,—Kent and Sussex. The two local option districts in New Castle County, Wilmington and the rural part of the county, voted for license. The action of the General Assembly noted above simply provides that the district of rural New Castle County shall have another opportunity to vote on the question in November, 1910.

The General Assembly appropriated \$15,000,

or \$5000 for each county, to be used for the building of tuberculosis sanitariums, one of which is already in existence near Wilmington.

OFFICERS: Governor, Simeon H. Pennewill; Lieutenant-Governor, John M. Mendinhal; Secretary of State, William T. Smithers; Treasurer, David O. Moore; Auditor, Theo. F. Clark; Attorney-General, Andrew C. Gray; Adjutant-General, I. P. Weckersham; Commissioner of Insurance, Chas. H. Maull—all Republicans, except Gray, Democrat.

JUDICIARY. Supreme Court: Chancellor, Chas. M. Curtis, Republican; Chief Justice, James Pennewill, Republican; Associate Justices, Henry C. Conrad, Republican; Victor B. Woolley, Democrat; Daniel O. Hastings, Republican; William H. Boyce, Democrat; Clerk, Chas. H. Le Fevre, Democrat.

The State Legislature of 1909 was composed of 11 Republicans and 6 Democrats in the Senate, and 17 Republicans and 18 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

DENISON, CHARLES. An American physician, died January 10, 1909. He was born at Royalton, Vt., in 1845, graduated from Williams College in 1867, and from the medical department of the University of Vermont in 1869. After several years of practice in Hartford, Conn., he went in 1873 to Denver, because of pulmonary hemorrhage. He was for fourteen years professor of diseases of the throat and climatology in the University of Denver, and following his retirement was emeritus professor. Dr. Denison was a leader in the crusade against tuberculosis, and was a specialist in the treatment of that disease. In 1890 he was president of the American Climatological Association. Among his writings are *Rocky Mountain Health Resorts* (1876); *Exercise and Food for Pulmonary Invalids* (1895), and many articles and reports in periodicals.

DENMARK. A constitutional monarchy of Northern Europe. Capital, Copenhagen.

AREA AND POPULATION. Area, exclusive of dependencies, 15,385 square miles. Total population (1906), 2,605,268. The population is almost entirely Scandinavian. In 1907 the number of marriages was 20,103; in 1908, 19,956; births (including stillbirths), 76,151 and 78,077; deaths (including stillbirths), 39,089 and 40,917. Emigrants in 1907 numbered 7890; in 1908, 4558. The population of Copenhagen in 1906 was 426,540 (with suburbs, 514,134); of Aarhus, 55,193; Odense, 40,547; Aalborg, 31,509; Horsens, 22,327; Randers, 20,963.

EDUCATION. Primary education is compulsory. There were in 1906 about 3400 public elementary schools (38 in Copenhagen, 146 in other towns, and 3217 in rural districts), with about 341,000 pupils. The secondary schools, public and private, had an attendance of about 57,000. The University of Copenhagen, founded 1479, has five faculties, to all of which women are admitted on equal terms with men. Four to five hundred students matriculate annually. The Lutheran is the established religion; complete religious toleration prevails.

INDUSTRIES. Of the total area, 80 per cent. is productive, and one-sixth of the remainder is in peat bogs. The law prohibits the condensation of a number of small farms into one estate; the soil is therefore greatly subdivided.

The area under the principal crops in 1907 and the production were as follows: Oats, 403,050 hectares, 15,717,391 hectolitres (1 hectolitre = 2.838 U. S. bushels); rye, 276,011 hectares, 5,591,057 hectolitres; barley, 233,712 hectares, 8,634,553 hectolitres; wheat, 40,788 hectares, 1,539,308 hectolitres; beetroot, 228,756 hectares, 95,053,311 hectolitres; potatoes, 54,075 hectares, 8,459,315 hectolitres. In 1907, 7 sugar factories turned out 52,660 tons of beet sugar; in 1908-9, 64,000 tons; 27,110 tons of margarine and oleomargarine were manufactured at 16 factories in 1907. There were in 1908, 1345 creameries. These creameries are run on the coöperative plan, and the manufacture of butter for export is an important industry. The yield of the fisheries in 1906 was valued at 12,414,498 kroner; in 1907, at 13,587,472 kroner.

COMMERCE. In the general commerce, imports and exports in 1906 were valued at 725,626,000 kroner and 559,508,000 respectively (1 krone = 26.8 cents); 1907, 788,866,000 and 604,922,000; 1908, 709,423,000 and 550,654,000. In the general trade imports in 1907 and 1908 and exports in 1908 were valued in thousands of kroner as follows:

Countries	Imports		Exports
	1907	1908	1908
Germany	257,837	237,921	121,221
Great Britain	135,008	109,304	336,825
United States	124,128	112,525	24,640
Russia	76,469	66,629	39,299
Sweden	67,173	58,103	46,671
Netherlands	22,918	17,678	2,481
France	17,278	16,424	658
Norway	13,655	10,795	21,999
Belgium	9,925	9,417	1,418

In the special trade, imports and exports were valued at 559,328,000 kroner and 393,512,000 kroner respectively in 1906; 1907, 681,129,000 and 416,863,000; 1908, 614,544,000 and 439,518,000. In the special trade the leading imports in 1908 were as follows: Cereals, 80,382,000 kroner; oil cake, 56,536,000; coal, 43,562,000; iron manufactures, 31,069,000; timber, lumber, etc., 25,062,000; woollens, 18,334,000; cotton and other vegetable textiles, 17,117,000; fats, 10,978,000; tobacco, 10,508,000; oil, 10,078,000; hides and skins, 9,499,000; seeds, 8,474,000; coffee, 8,062,000; fruits, 7,077,000; woolen yarn, 6,836,000; iron, 6,350,000; animals, 5,848,000; boats, 1,314,000. The principal exports in 1908 (special trade) were: Butter, 183,079,000; meat, 112,839,000; animals, 39,659,000; eggs, 27,418,000; hides and skins, 12,512,000; fish, 7,409,000; boats, 6,587,000; barley, 6,291,000; iron manufactures, 5,640,000.

COMMUNICATIONS. The total length of railways at the end of 1907 was 2083 miles; of which 1167 miles, valued at 221,506,211 kroner, belong to the state. Not including Copenhagen, Denmark had in 1907 4188 miles of road and 22,245 miles of byways. There were 1034 post-offices and 525 telegraph offices (state, railway, and private). The length of state telegraph lines (March 31, 1908) was 2320 miles, and the length of wire, 8781. The merchant marine, January 1, 1908, included 4321 vessels of 545,981 registered tons, of which 695 were steamers of 405,946 tons. During 1907, 35,147 vessels of 3,864,426 tons entered the Danish ports, and 36,635 vessels of 1,256,195 tons cleared; in the coasting trade, 36,142 vessels entered, and 35,792 cleared.

FINANCE. The actual revenue and expenditure in the fiscal year 1907-8 were 97,499,771 kroner and 94,119,618 kroner respectively; for 1908-9, 93,359,181 and 107,996,039.

For 1909-10 the estimated revenue was 93,448,885 kroner, and the estimated expenditure 102,256,833 kroner. The principal items of estimated revenue were: Indirect taxes (mainly customs and excise), 64,306,100 kroner; direct taxes, 15,161,000; interest, etc., 5,814,463; revenue from employment of property, 1,985,784; lottery, 1,555,000. The larger estimated expenditures were: Capital expenditure on public works, railways, etc., 15,896,879 kroner; war, 13,283,312; worship and instruction, 11,887,983; interior, 10,787,008; public debt, 8,340,659; marine, 8,304,906; justice, 8,039,391; finance, 6,121,745; pensions, 4,891,100; agriculture, 4,343,131; public works (ministry of), 1,294,233; civil list and appanages, 1,155,200. On March 31, 1909, the external debt stood at 166,127,250 kroner; internal debt, 87,816,909; total, 255,933,203. The emergency reserve fund (which amounted to 116,246,060 kroner in 1867, 38,365,915 in 1877, and 17,820,879 in 1887) stood at 17,897,222 kroner on March 31, 1909.

The national debt, March 31, 1908, stood at 255,933,203 kroner (foreign, 167,827,250), mostly at 3 per cent. The accounts of the National Bank balanced, July 31, 1908, at 189,374,884 kroner; the assets included 82,402,429 kroner in bullion and specie, and the liabilities included 133,000,000 kroner note issue, 27,000,000 capital, and 3,000,000 reserve fund. Other banks to the number of 130 transact the ordinary business of the country. There were, March 31, 1907, 516 savings banks, with 1,240,739 depositors and deposits amounting to 717,443,586 kroner. The value of coin minted in 1908 was: Gold, 5,926,990 kroner; silver, 808,915; bronze, 129,967; total, 6,865,872.

NAVY. The effective navy in 1909 included 4 monitors, 3 torpedo gunboats, 14 first-class torpedo-boats, and 1 submarine. There is a considerable number of old vessels of little or no fighting value.

ARMY. As provided by the military laws of 1909 the Danish army, a national militia in which service is compulsory, comprises two corps. It receives annually 8000 recruits for the infantry, serving 163 days; 272 for the guard, serving 150 days; 380 for the cavalry, serving 200 days; 270 for the train, 792 for the field artillery, serving one year as drivers or 280 days in the ranks; 800 serving 1 year in the coast artillery, 300 serving in the engineers for 210 days, 60 in the technical branches for 13 months, 50 in the commissary department, serving 125 days; and 120 in the medical corps, serving for 230 days. The new organization would give a total of 52 battalions, 31 of the line and 21 of the reserves of four companies each for the infantry in place of 44 battalions, 4 regiments (2 having 1 squadron of the reserves) of three squadrons, or 12 instead of 15 squadrons, 24 batteries of field artillery in place of 16, 18 batteries of coast artillery as previously and 12 companies of engineers instead of 9. General Lütken commanding the army corps of Zealand was replaced by General Gürtz.

GOVERNMENT. According to the present Constitution, the executive authority is vested in the King and his responsible ministers, and the

legislative power in the Rigsdag, a body composed of a Senate (Landsting) and a House of Commons (Folkething). The Landsting has 66 members, 12 nominated by the Crown, the remainder elected indirectly. The Folkething consists of 114 members, elected by universal suffrage. The present King, Frederick VIII., was born June 3, 1843; married, July 28, 1869, to Princess Louisa of Sweden and Norway; succeeded to the throne January 29, 1906. Heir apparent, Prince Christian, born September 26, 1870. The Ministry of October 23, 1909, was constituted as follows: President of the Council and Minister of Justice, C. Th. Zahle; War and Marine, C. Krabbe; Foreign Affairs, E. J. C. Scavenius; Agriculture, Paul Christensen; Worship and Instruction, M. C. B. Nielsen; Public Works, J. J. Jensen; Interior, Dr. P. R. Münch; Finance, Dr. C. E. C. Brandes; Commerce and Navigation, V. H. O. Weimann; Minister for Iceland, Bjorn Jonsson.

COLONIES. The colonial possessions of Denmark are: Iceland, Greenland, and the Danish West Indies (qq. v.).

HISTORY. As in the previous year the main question in Danish politics was that of defense. The government's defense plan was submitted on February 12. This provided for fortification both by land and sea and called for twenty torpedo-boats, six submarines, the improvement of the mines and other means of defense. To carry the plan into effect 42,200,000 kroner were required at once and an annual increase of 3,327,000 kroner in the military budgets was proposed. M. Christensen, the former Premier, however, whose following was considerable, complicated matters by a speech in which he differed from the government's proposals as to the land fortifications of Copenhagen. On May 25 the general elections were held. They turned on the issue of land fortifications for Copenhagen. The Conservatives in general favored these fortifications as part of a system of defense that should be strong enough to prove that Denmark was able to enforce her neutrality. The Socialists on the other hand held that expenditure for this purpose was wasteful since Denmark was too weak to defend herself in the event of war. Moreover the ultimate aim of the Socialist policy was disarmament. The effect of the elections was in general to favor the Moderate Left then in power, but it could not command a majority for its defense scheme except by a combination with M. Christensen and his followers. On July 31 the Cabinet resigned. It held office for a short time afterwards at the request of the King, but in August a new Cabinet was formed under Count Holstein-Ledreborg, who had retired twenty years before and was seventy years of age. The new Ministry included both the former Premiers, Neergaard and Christensen and was agreed on the general policy of improving Copenhagen's land defense, but with modifications to comply with the demands of M. Christensen. The reappointment of Christensen caused great indignation, except among his personal followers, on account of his relation to the Alberti scandal of the previous year, and in October he resigned his portfolio as Minister of National Defense on account of the public demonstrations against him. The King appointed Premier Holstein-Ledreborg to that post. Meanwhile, on September 24, a compromise defense scheme representing an agreement between MM. Christensen and Neergaard was passed by Parliament. It provided for strong sea defenses for Copen-

hagen, but left the land defenses of the 'eighties, though strengthened somewhat by two new so-called sea forts. This did not go far enough for the Conservatives who wished strong defenses in the spirit of Denmark's treaties, and went too far for the Socialists who desired disarmament. A new Cabinet crisis occurred in October, the Extreme Right and Left having joined in attacking the Premier and finally having carried a vote of no confidence. The Premier resigned and a Radical Ministry succeeded under M. Zahle. Its position was precarious as it was supported only by a small portion of the Folkething. The charges against the former Ministers MM. Christensen and Berg on account of their relations with the Alberti scandal raised the question of impeachment. A committee of the Folkething, appointed to consider the matter, reported on December 1 in favor of their arraignment before a judicial body of the state. The Zahle Cabinet (see preceding paragraph on *Government*), was the fifth Cabinet that Denmark had had in less than a year and a half. It was the first Radical Cabinet in her history, and the only one that had to rest for its support on the Socialists. Fear was expressed that the new Ministry would endeavor to obstruct the execution of the defense laws, but the Minister of Finance announced early in November that the government would carry out these measures. Iceland's dissatisfaction with the terms of her present relations with Denmark was again manifest in 1909. Early in the year the Icelandic Minister in the Danish Cabinet resigned. The Icelandic members of the recent commission with one exception favored Icelandic autonomy, leaving the mother country to control only matters of foreign policy and national defense. In the Icelandic elections the party that wished Iceland to be united with Denmark only in the person of the King received the majority of votes. In July the King and Queen visited the Czar at Peterhof.

DEPOSIT GUARANTEE. See **BANKS** and **BANKING**.

DES MOINES, IOWA. See **ELECTORAL REFORM**.

D'ESTOURNELLES DE CONSTANT, PAUL HENRY BENJAMIN. A French publicist and diplomat, awarded on December 9, 1909, the Nobel prize for the advancement of peace. He was born at La Flèche in 1852 and was educated at the Lycée Louis-le-Grand, Paris, where he became a graduate in law and took the diploma of the School of Oriental Languages. He entered the diplomatic service and reached the highest rank in it, being for some time French Ambassador to England. He then entered home politics, serving as deputy for the Sarthe from 1895 to 1904, when he was elected senator. He participated in the two peace congresses held at The Hague, and took an active part in other congresses for the advancement of peace in Europe and the United States. Among his published writings are treatises on the French protectorate over Tunis, on provincial life in Greece and on the religious congregations of the Arabs; also two plays on classic themes, *Galatée* and *Pygmalion*.

DHANIS, BARON. A Belgian explorer, died November 13, 1909. He was born in 1859, and received his early education in Greenock, Scotland. He entered the Belgian army in 1884, and took part in the efforts which were being made by King Leopold of Belgium to found stations

on the shores of Lake Tanganyika. He soon after proceeded to the Congo and was active in extending the influence and rule of the state. In 1888 he founded several stations on the northern bank of the Middle Congo and in 1890 he explored the Stanley Falls region to the river Kwango, establishing several new stations. In 1892-3 he conducted a campaign against Arab slave raiders, who, after Stanley's rescue of Emin Pasha, had established themselves along the Falls and at Nyangwe and Kasongo, which had become flourishing towns strongly fortified. They dominated the whole region. In 1892 these Arabs attacked an expedition under Commandant Dhanis which was proceeding southward to Katanga. The latter diverted his march to the east and with strong reinforcements attacked both Nyangwe and Kasongo. These operations, extending over 1902-3, involved great slaughter on both sides; but in the end, Dhanis inflicted complete defeat on the Arabs and utterly destroyed both towns, thus establishing the supremacy of the rule of the Free State. On his return to Belgium he was raised by the King to the rank of baron. Returning to the Congo the next year he was made vice-governor in 1895. In 1896-7 he took a leading part in the great expedition towards the Nile, during which his troops mutinied, killed several officers, including Dhanis's brother, and compelled the expedition to retreat toward the Congo. It was with great difficulty that the mutineers were subdued and comparative order restored. The last years of his life Baron Dhanis lived in retirement in Belgium.

DICKINSON, JACOB MCGAVOCK. An American lawyer, appointed Secretary of War in 1909. He was born in Columbus, Miss., in 1851. At the age of 14 he enlisted in the Confederate army. He graduated from the University of Nashville in 1871, and studied law at Columbia University and at Leipzig. After his admission to the bar he practiced in Tennessee. In 1895-7 he was Assistant Attorney-General of the United States. By special commission he served on several occasions on the supreme bench of Tennessee. In 1903 he served as counsel for the United States before the Alaskan Boundary Commission, and was paid a high tribute by Baron Alverstone, Lord Chief Justice of England, umpire of the tribunal. In 1899 he became general counsel for the Illinois Central Railroad Co., a position which he held when invited by President Taft to become Secretary of War in his cabinet. Mr. Dickinson is a Democrat of the conservative type. He was president of the American Bar Association in 1907-8, and is considered one of the most able and eminent lawyers in the United States.

DIETETICS. See **FOOD** and **NUTRITION**.

DIRECT PRIMARIES. See **ELECTORAL REFORM**.

DISEASES OF ANIMALS. See **VETERINARY SCIENCE**.

DISCIPLES OF CHRIST, known also as Campbellites, after Alexander Campbell, of Bethany, West Virginia. In 1811 the first church was organized and the body may be dated as a distinct organization from 1827. The denomination has had a rapid growth. The total number of communicants in 1909 was 1,217,976. These were in the United States. There were in all countries, 1,329,559. There were 10,522 churches and 5985 ministers. There were en-

rolled in the Bible schools of the denomination 912,859 pupils. The value of the church property was \$28,031,520. The churches of the denomination lie chiefly in the Middle West and South, although it is represented in every State in the Union with the exception of two. There are many churches in Australia and other parts of Great Britain. Churches also exist in Cuba, Philippines, Canada and Scandinavia. Missionary work is carried on in Japan, China, India, Philippines, Hawaii, Cuba, England, Norway, Sweden, Denmark and Porto Rico. The receipts for foreign missions in 1909 were \$350,685. Twelve new missionaries were sent out in 1909 and a number of others are under appointment. The Foreign Missionary Society supports 17 medical missionaries and 17 hospitals and dispensaries, and in 1909 treated 131,770 patients. The American Christian Missionary Society conducts the domestic missions of the denomination. This Society received for its work in 1909 \$118,756. During 1909 the Society aided in the support of 386 workers in the field. There is also a Christian Women's Board of Missions which supports missions at home and abroad. The Disciples rank third among the churches in the number of Christian Endeavor Societies. They have also many strong educational institutions as Bethany College, West Virginia; Hiram College, Ohio; Transylvania University, Lexington, Ky.; Drake University, Des Moines, Ia.; Butler University, Indianapolis, and Christian University, Canton, Mo.

The centennial celebration of the founding of the denomination was held in Pittsburg from the 11th to the 19th of October. It was one of the largest religious conventions ever held and it was estimated that some 50,000 people were gathered together. At the open-air communion service between 25,000 and 30,000 persons were present. The most notable address was that of Col. S. H. Church, a layman. He urged that the spirit of Alexander Campbell and his colleagues be given greater sway in dealing with the problems of the day; that insistence on immersion as a requisite for discipleship be frankly abandoned by the Disciples; that the principle of religious union be frankly acknowledged as including the Roman Catholic and the Jew; that the Disciples accept the knowledge that modern criticism of the Bible has brought; and that they cease to build churches in small communities already supplied with churches bearing other names. This address aroused great opposition among the delegates and a resolution was passed specifically disavowing the conclusions which Colonel Church reached.

DISTRICT OF COLUMBIA. That portion of the Federal domain which is the seat of government of the United States. It is coextensive with the city of Washington. The District was organized on March 30, 1791, when a concession of land amounting to 100 square miles was made to the United States by the States of Maryland and Virginia. The gross area is about 60 square miles, as a portion of the original cession was re-ceded to Virginia in 1846. A census of the District was taken on April 1, 1909, and showed a total population of 343,003, including 99,142 colored.

FINANCE. The receipts from all sources during the year were \$14,168,448. This includes a cash balance left from the fiscal year 1908 of \$331,187. The expenditures were from the District of Columbia appropriations, \$12,654,624, and

from the special trust fund, \$1,147,749, leaving an unexpended balance at the end of the fiscal year 1909 of \$366,074. The chief sources of revenue are taxes, trust and special fund collections, and United States payments from appropriations under the act of 1878.

EDUCATION. The largest amount of the estimates for appropriations are made for the maintenance of the public schools. During the fiscal year ended June 30, 1909, six school buildings were completed and progress was made upon seven others authorized by Congress. The total enrollment of pupils in that year was as follows: Day schools, 54,592; night schools, 3792, a total of 58,384. The number of teachers in the day schools was 1628 and in the night schools, 101. A system of medical inspection is maintained in the schools and during the school term 1908-9 the twelve medical inspectors made 9197 visits to school buildings.

MUNICIPAL CONDITIONS AND PROGRESS. In accordance with recommendations of the Commissioners made in their annual report of 1908, Congress enacted a bill whereby the jurisdictions of the several Justices of the Peace were combined in the municipal court, the duties of which were defined in the statute. The court was established February 17, 1909, and the record which it made during the year fully justified the enactment of the law.

The Juvenile Court, created by Congress, has also justified its establishment as a necessary part of the machinery for dealing with delinquent and dependent children. During the fiscal year 2546 children were brought before the Juvenile Court and disposed of by it under the law. In addition 929 adult cases, chiefly for the non-support of wife or children or both, were passed upon and 824 cases were disposed of under the child labor law.

A larger use of public playgrounds of the District was made during the year 1909. There were nine municipal playgrounds operated in 1909 with 390,871 attendances.

During the year twenty miles of sewers were constructed. The total length of sewers in the District on June 30, 1909 was 541.26 miles. During the year 3988 trees were planted, an increase of 659 over the preceding year.

The Commissioners of the District in their annual report recommended that additional parks should be established. The only large public reservation is Rock Creek Park, which contains about 1605 acres. The plans of the Senate Park Commission provided for the establishment of a chain of parks in that portion of the District outside the city limits and connecting them by parkways or boulevards. The Commissioners also called attention to the urgent need for the improvement of the harbor front, especially along the Washington channel.

MISCELLANEOUS. In accordance with the action of the President in approving the suggestion, the District of Columbia will hereafter be represented at the Military and Naval Academies. The Commissioners will have the power to appoint candidates after competitive examination. By authority of Congress the Commissioners in April, 1909, removed the remains of Major Pierre Charles L'Enfant, the architect of the Capitol, from Green Hill, Maryland, where they were buried in 1825, to the Arlington cemetery.

DODGE, THEODORE AYRAULT. An American soldier and military writer, died October 26,

1909. He was born in Pittsfield, Mass., in 1842, and received his military education under Major-General von Frohreich of the Prussian army in Berlin, and graduated from the London University in 1861. Returning to the United States he volunteered in the Union army and served as first lieutenant in the 119th New York Infantry. He received wounds at Manassas and Chantilly. At the battle of Gettysburg he lost his right leg and was captured. Following the war he served in the Paymaster-General's office at Washington and was mustered out of the volunteer service in 1866. He was then appointed captain in the 44th regular infantry and retired for disability in 1870. In 1904 he received the rank of major and was brevetted colonel of volunteers and lieutenant-colonel in the regular army for his Civil War services. He was well known as a writer on military subjects. Among his published works are: *History of the Art of War—Alexander, Hannibal, Cæsar, Gustavus Adolphus, Napoleon* (12 vols., 1890-1907); *The Campaign of Chancellorsville* (1881); *Bird's-eye View of our Civil War* (1883); *Patroclus and Penelope* (1885); *Great Captains* (1889); and *Riders of Many Lands* (1894). He also contributed essays, reviews, and occasional verses to magazines.

DODS, MARCUS. A minister of the United Free Church of Scotland, died April 26, 1909. He was born in 1834 at Belford, Northumberland, graduated from Edinburgh University in 1854, and studied divinity at New College, 1854-8. From 1864 to 1889 he was pastor of Renfield Free Church, Glasgow, and in the latter year became professor of New Testament theology in New College, Edinburgh. He wrote among other works: *The Prayer that Teaches to Pray* (1863); *Epistles to the Seven Churches* (1865); *The Parables of Our Lord*, 2 series (1883-5); *How to Become Like Christ* (1897); *Forerunners of Dante* (1903); *The Bible; Its Origin and Nature* (1905). Dr. Dods contributed articles on religious subjects to the *Encyclopædia Britannica* and to various periodicals.

DOHRN, ANTON. A German zoölogist, died September 30, 1909. He was born in 1840 at Stettin. He studied the natural sciences under Haeckel in Jena, where he subsequently became privat-docent. He made important investigations of marine animals, especially crustaceans, and made journeys to the coast of England and to the Mediterranean for the purpose of studying them. He established in 1870 a zoölogical station at Naples, the first and most important institution of its kind. Among his published writings were: *Der Ursprung der Wirbelthiere* (1875); and *Studien zur Urgeschichte des Wirbelthierkörpers* (1882).

DOMINICA. A West Indian island belonging to Great Britain; one of the five presidencies of the Leeward Islands (q. v.). Area, 291 square miles; population (1901), 28,894. Capital, Roseau, with about 6000 inhabitants. There is a Carib settlement with about 400 inhabitants. The imports amounted (1908-9) to £153,114; the exports, chiefly cacao, coffee, and fruits, to £112,013. The local revenue and expenditure for three successive years are given as follows: 1906-7, £34,149 and £31,055; 1907-8, £39,865 and £31,486; 1908-9, £42,147 and £37,178. The public debt stood (1909) at £50,350. There is an executive council and a legislative council. The President is W. Douglas Young.

DOMINICAN REPUBLIC. See SANTO DOMINGO.

DRAINAGE. The great activity in extending the agricultural areas in the United States by both irrigation and drainage, which has been so marked for the past few years, continued during 1909. It was estimated by the Secretary of Agriculture in 1908 that there had been drained in the several States, under local drainage laws, an area of 15,889,000 acres. This area has been greatly extended during the year 1909, the largest areas being in Iowa, Missouri, Arkansas, Louisiana, Florida, and North Carolina. The State of Florida has undertaken the drainage of the Everglades, and much of the land in this great swamp has been sold to companies, which are putting it on the market for settlement. North Carolina enacted a drainage district law, which has made possible the drainage of large areas in the coastal plains of that State.

Perhaps the greatest activity in the drainage of wet lands outside of the United States is in Italy in the eastern part of the Valley of the Po. This work is done principally by the general government, which exercises control over all drainage work. Drainage works are divided into two classes, the first class including those which are built primarily for the improvement of hygienic conditions and those which in addition to improving agricultural conditions will improve the hygienic conditions. Works of this class are built by the general government, which bears six-tenths of the expense, the remaining cost being distributed as follows: One-tenth by the province or provinces interested; first, by the commune or communes interested; and second, by the owners of the lands benefited. The second class includes all drainage works which do not come within class one, and they are built by the land-owners at their own expense, under concessions granted by the government. The laws provide for the organization of drainage districts, and the making of loans to such districts by the state bank of deposits and loans. The government has appropriated funds for the construction of drainage works to be expended during the years 1900 to 1933, the total sum being about \$40,000,000. The law provides for the expenditure of two-thirds as much more, or nearly \$27,000,000, by the provinces, communes, and interested land-owners.

It is estimated that there are 16,000,000 acres of land needing drainage in France, and the French government is encouraging its reclamation by building some of the more important works, by providing for loans for their construction, and by maintaining a technical force which is at the service of those wishing to construct drainage works.

Russia in Europe contains about 160,000,000 acres of swamp land, most of which is in the northern part of the country. Large areas have been drained by the government, the principal tracts being in the vicinity of St. Petersburg and in Poland. In Poland the area affected by the canals built is about 7,500,000 acres, about 1,000,000 acres of marsh land having been turned into farms, the remainder being timbered lands which have been rendered accessible by drainage. In the provinces of St. Petersburg, Novgorod, and Pskov the area of swamp lands is about 10,000,000 acres, of which 330,000 acres has been drained. The Russian government is draining large areas also along

the Trans-Siberian Railway, to promote colonization.

DRAINAGE OF IRRIGATED LANDS. In all countries where irrigation is practiced extensively, large areas of lands have been damaged by the rise of ground water and the accumulation of alkali due to evaporation from the wet soil. In the United States, up to the last few years, the practice has been to abandon such lands when they became unproductive, and bring into cultivation new lands on higher levels, but the expense of this proceeding has brought about efforts to reclaim the ruined lands. The United States Department of Agriculture has carried on experiments to work out methods of relieving such lands of both surplus water and alkali. It has been shown that the installation of under drains which will hold the ground water below the root zones of plants will prevent damage from water, and that repeated applications of water alternating with deep cultivations after under drains have been put in, will in a season or two leach out the salt so that the lands will again produce crops. It is usually the low lands which suffer most, and often gravity outlets for the drains are not available. Under such condition it is necessary to drain the water to sumps, from which it is pumped into canals or rivers above the level of the drained lands. The area of lands in the irrigated parts of the United States which are drained in this way is not large as yet, but it is being recognized that irrigated lands, to be permanently productive must have good drainage, either natural or artificial, and many of the larger irrigation projects now being developed include in their plans complete systems of drains.

The same conditions have been found in Egypt and India by the English engineers. Practically all of the land in the delta of the Nile must be drained continuously as well as irrigated to prevent the accumulation of alkali. Most of this drainage water is pumped. The lands in Upper Egypt have natural drainage.

Throughout the world the reclamation of swamps and wet lands offers an easy means of extending the agricultural areas. These lands are usually fertile, and require only to be relieved of their surplus water or to be protected from overflow to become among the most productive lands.

DRAMA. By far the most important event of 1909 in the history of the stage in the United States, was the opening of the New Theatre in New York City, an establishment founded and equipped by a number of rich New Yorkers, whose hope is that it will accomplish for the American stage what the Théâtre Français does for that of France, or the Burg Theatre for that of Austria. The fact that fully half the plays produced upon the American stage are of foreign origin, English, French, or German, and that the actors are often foreign-born, makes it the more imperative that the productions and the acting in some one American theatre shall be recognized as establishing a standard of excellence. It is understood that in the New Theatre plays will be given without regard to the question asked first with regard to any play by any manager: Will it pay?

The directions given to Mr. Winthrop Ames, manager of the New Theatre, and his associate, Mr. John Corbin, to whom falls most of the work of selection, are virtually to produce in

the worthiest manner possible, such plays as in their judgment ought to be produced. The financial result is a secondary consideration.

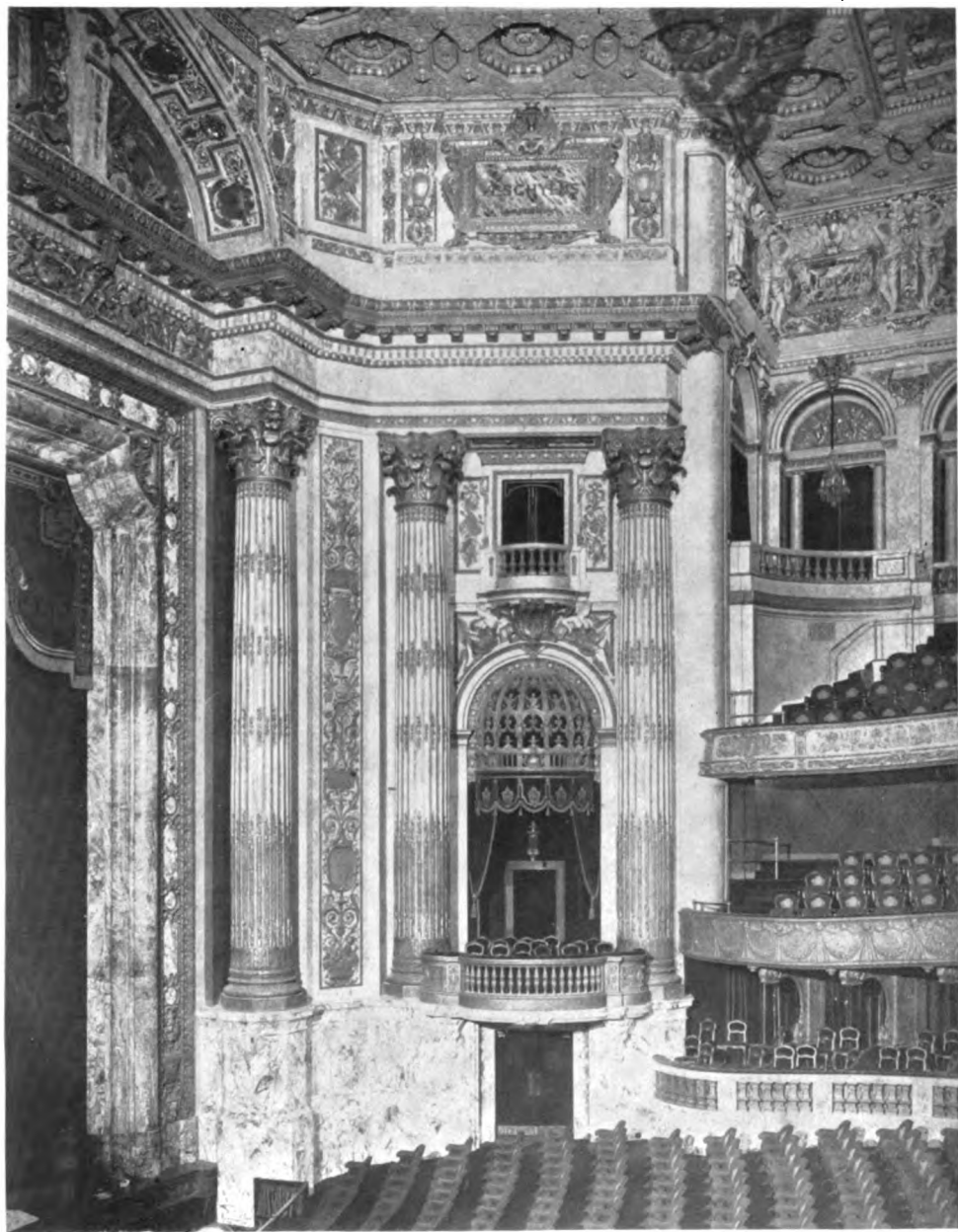
The New Theatre, the most costly and elaborate playhouse in America, was opened in November, 1909, with fitting ceremony. The building, designed by Messrs. Carrère and Hastings, occupies a plot facing Central Park and is dignified in design and beautiful in detail. It seats about 2500 persons. Unfortunately the acoustics are not good and radical changes in the auditorium may have to be made.

The opening play was Shakespeare's *Antony and Cleopatra*, with Mr. E. H. Sothern and Miss Julia Marlowe in the chief parts. It was received by the public with respectful consideration, but no enthusiasm. Other plays given later were: *The Cottage in the Air*, by Edward Knoblauch, a light comedy concerned with the adventures of a German princess who flees from court etiquette to an English village, with more or less amusing results; *Strife*, a play of contest between capital and labor, by the Englishman, John Galsworthy, who makes his story vivid and dramatically effective; *The Nigger*, a drama dealing with the race problem. The leader of the Southern community in which he lives, engaged to marry a woman full of Southern prejudice, discovers that he has negro blood in his veins. Sheridan's *School for Scandal* was revived, but not in a manner to reflect credit upon the establishment. *Don*, a farce-comedy, by Rudolph Besier, an English author, proved to be amusing in spots.

The company engaged at the New Theatre includes a number of competent actors, among whom are Messrs. E. H. Sothern, Louis Calvert, Rowland Buckstone, Ferdinand Gottschalk, Matheson Lang, Guy Bates Post, and Jacob Wendell, Jr., Mrs. Harriet Otis Dellenbaugh, Mrs. Sol Smith and the Misses Julia Marlowe, Rose Coghlan, Annie Russell, Jessie Busley, and Leah Bateman-Hunter.

If the plays produced at the New Theatre in 1909 did not achieve the measure of success hoped for, they received respectful consideration. When the acoustics of the house have been improved and the company has had time to "find" itself, there is reason to expect results along the lines laid out by the founders of the enterprise. More than two thousand new plays were received for examination at the New Theatre during the year, of which less than a dozen were found to warrant serious consideration.

In the field of tragedy the year was almost barren. Of ambitious purpose and some artistic success was Mr. William Faversham's production of Stephen Phillips's *Herod*, a play long recognized as containing remarkable beauty, but which American managers had been averse to trying. Mr. Faversham, an actor of too light calibre for the part of Herod, deserves commendation for his serious and dignified treatment of the play. In the last scene of the drama he gave a picture of the crazed king that was theatrically admirable, especially as coming from an actor whose best work has been done in comedy. Mr. Robert Mantell revived Shakespeare's *King John*, which was almost a novelty to the present generation of playgoers. His own work was respectable, if not inspiring. For the rest the revival only served to show once more how futile it is to look to-day for actors competent in classic drama. Farce comedy in slang offers no training for tragedy in verse.



Copyright, 1909, by The New Theatre, New York

THE NEW THEATRE, NEW YORK
INTERIOR WITH GUESTS' BOX IN CENTRE

Miss Maude Adams, in an English version of Schiller's *Joan of Arc* in the Stadium of Harvard University at Cambridge, succeeded at least in presenting a series of stirring pictures, splendid in color and movement. Her Joan was astonishingly effective, considering this delightful actress's physical limitations. Nature has not cast her for heroic parts. The play was splendidly given from the spectacular standpoint by the small army of more than a thousand persons employed in it.

In the field of serious drama another play by Eugene Walter, entitled *The Easiest Way*, held the New York stage for the entire year. Mr. Walter, in his *Paid in Full*, a drama of some power and much theatric vividness, had already proved his right to serious consideration. No young man seems to have a greater faculty for the invention of effective situations or better instinct for their presentation. It is therefore the more to be regretted that in *The Easiest Way*, a really powerful play, Mr. Walter wastes his gifts, so far as any moral lesson goes. He sketches the downward career of a girl whose instincts are good, but who succumbs to temptation under stress of poverty and takes "the easiest way." The play owed its great popular success to the vivid realism of the several types employed—the girl herself, admirably acted by Miss Frances Starr; the rich man-about-town, sensuous, good-humored, brutal in his relations to women, but open-handed; the honest lover who is willing to forgive much, but not everything; the parasites who, in certain circles, stand always pointing toward this "easiest way," and so on through a long list of figures, all sketched with extreme cleverness. The brutal frankness of the dialogue led more than one critic to denounce the play as indecent. Mr. Walter in reply has asserted that he has simply exposed one case of a thousand, and that if he can make people take up the problem some remedy may be suggested. As a playwright he suggests none, and the impression remains that too often the easiest way is the only way.

In welcome contrast to the sordid grip of *The Easiest Way*, was the delightful comedy of Jerome K. Jerome, *The Passing of the Third Floor Back*, which, after a long period of success in London, was transplanted to New York with Mr. Forbes-Robertson in the leading part. It is an entertainment rather than a play, a succession of short scenes, almost unrelated, and portrays the power of one sweet nature to leaven an astonishing mass of viciousness. The scene is a middle-class London boarding house in which are a landlady who has seen better days, a "slavey" with a heart, a broken-down army officer ready to sell his daughter to a drunken gambler, a Jew swindler, a "painted lady," who with cosmetics and false hair, defies time, and several other types of vicious selfishness, all shallow, all scheming in a thousand petty ways to appear what they are not. Into this house comes a stranger, who brings to the surface the grain of good in each of the poor wretches and makes it grow with wholly improbable but highly amusing results. The roué repents of his pursuit of the "slavey," the landlady becomes honest in her dealings, the girl about to sell herself to the gambler finds an honest lover, the painted lady drops all her shams, the Jew swindler turns over a new leaf, and when the stranger leaves, the house has been transformed for the better. It is all im-

possible, but delightful, full of exquisite touches of humor and pathos; and it is gratifying to add that the public crowded the theatre for month after month.

Several dramas from French sources have made an impression during the year. Mr. David Belasco, whose stage-craft counted for much in the production of *The Easiest Way*, brought forward an adaptation of *Le Lis*, by MM. Wolff and Leroux, under the title of *The Lily*, in which one scene, with Miss Nance O'Neill as the central figure, was acclaimed as a masterpiece of dramatic power. The conditions set forth are essentially European, but sufficiently clear to be understood here. A woman of the upper classes has been sacrificed to the prejudices of her caste; she has lost youth, love, happiness, because caste prejudices and parental selfishness stood in her way. When she sees her younger sister, to whom she has been a mother, about to be sacrificed in similar fashion, she turns upon her family and in a fierce outburst claims for the sister the right to love as her birthright. Miss O'Neill's passionate denunciation of the system under which her life had gone to waste was a fine bit of work that went far to justify many persons in their high estimate of this actress, whose past successes have been won outside of the metropolis.

M. Bourget's *Divorce* was also heard here in an English version by Mr. Stanislaus Stange. Notwithstanding the brilliancy of the dialogue—the play is mostly talk—it failed to interest an American audience. In France, where the divorce problem is a vital one, the tangle in which a dozen persons are involved was interesting. Even the fine art of Miss Mary Shaw failed to make this English version a success.

Still another play, in which a single scene of power saved a production that might otherwise pass unnoticed, was the late Clyde Fitch's *The City*. By common consent, this has been acclaimed as the strongest work of a playwright whose ceaseless activity resulted mainly in plays of purely ephemeral interest. *The City* gives a realistic picture of the miseries and dangers that may befall those who forsake the safety of rural life for the glare of the large town, with incidentally an unpleasant episode in family relationship that might happen anywhere. When a man discovers that the girl he loves is his half-sister, the drama ends in tragedy. Mr. Tully Marshall, as an unfortunate victim of vicious heredity, played with uncommon power.

The Writing on the Wall, a drama by William J. Hurlbut, in which the English actress, Miss Nethersole, appeared, was an indictment of Trinity Corporation for alleged neglect of the tenement house laws with regard to fire protection. The little son of a rich owner of tenements is burned to death in one of his father's death-traps. The father has refused to heed the warnings of the proper authorities and has declined to put in certain fire escapes. As a lesson the play had a certain value. Miss Nethersole as a bereaved mother was moving in some scenes of agonizing grief despite a tendency towards cloying sentimentality. The atmosphere of the drama was too uniformly depressing to hold public attention for long.

A play in which police procedure was vehemently attacked was Charles Klein's *Third Degree*. An unfortunate and innocent man sus-

pected of murder is forced by police baiting into admissions that have the weight of a confession of guilt. He is really hypnotized by the masterful and brutal insistence of an examining police captain determined to prove him guilty. Of course in the end his innocence is shown. It has been contended that the grueling police examination known as the "third degree" is unfair to the prisoner and often results in injustice. Mr. Klein put his case strongly, and had the help of two excellent actors, Mr. Wallace Eddingher and Miss Helen Ware, in making it appealing to the public.

The Vampire, by Messrs. Woolf and Viereck, had an idea that might have proved of more theatric value if better developed. The theme is the absorption and theft of a man's literary ideas by a stronger nature. It was crudely worked out. Mr. Robert Hilliard found popularity in a curious melodramatic medley entitled *A Fool There Was*, by Porter Emerson Browne, in which dramatic exposition is given to Mr. Kipling's little poem of the Vampire woman and her victim. A husband blessed with an angel wife and child, strays after the temptress, who lures him to destruction. It is trivial, but calls for mention as one of the plays with a moral—that husbands should not play with fire in the shape of dangerous ladies—which survived the season.

The suffragette movement brought to the surface a play from England by Miss Elizabeth Robins called *Votes for Women*. Miss Mary Shaw as a woman who converts to the cause the man who has wronged her, was a strong figure in scenes that had far more interest in England than here, where the political allusions were but vaguely understood. In *Great John Ganton*, a dramatization by J. Hartley Manners, from a novel by Arthur J. Eddy, a good actor, Mr. George Fawcett, failed in a poor play. The hero, a hard-hearted business giant of the Chicago stockyards, is inhumanly severe upon his sentimental son and the son's sweetheart until paralysis and the sweetheart's tender nursing melt a stony heart.

A play by Israel Zangwill, called *The Melting Pot*, was based upon the theory that America is God's crucible in which various races of Europe are fused and improved. Out of the pot, into which go the German, the Frenchman, the Irishman, the Jew and all the others, comes the American. This is Mr. Zangwill's theme, which he develops with much ingenuity, but with too obvious a reliance on sentimental and patriotic rhetoric.

Cameo Kirby, by Messrs. Booth Tarkington and Harry L. Wilson, was a sketch of the old-time Western gambler, three parts rascal and one part hero, who flourishes in cheap fiction. The baleful influence of the counting room upon the editorial conscience in newspaper offices was brought up in *The Fourth Estate*, by Joseph Medill Patterson and Harriet Ford. A young editor sacrifices love and fortune rather than suppress an article he considers unjust. The inference drawn from the play is that newspaper owners are heartless, mercenary wretches, and that editors are too often their unwilling slaves. As originally presented, the young editor inserts the article so obnoxious to his employer and blows his brains out; but the supposed clamor for a happy ending led to a change and the editor steals away with the girl of his choice.

Another drama of far more importance, in which the happy ending mars a strong conclusion, was Henry Bernstein's *Israel*, of which an English version made a deep impression, although the theme—the wicked folly of Jew-baiting in polite society—has less interest in France than here. In the original Paris version the play ends logically in the suicide of a weakling; in answer to petitions from the American producer, Mr. Bernstein, probably with a shrug of his shoulders over "these queer Americans," lets him live and laugh.

In the list of new dramas that made some impression during the year, Mr. Augustus Thomas's *The Harvest Moon* deserves a place for its clever treatment of its central theme, the power of suggestion. Suggest to a man with sufficient insistence that he must go wrong or right, and the chances are that he will follow the suggestion. In this case it is suggested to a young girl that she must go wrong because her mother did so before her.

In light comedy the best offerings of the season came as usual from across the water. Mr. John Drew was fairly amusing in *Inconstant George*, from the French of MM. Flers and Caillavet. As a young man who falls in love with every woman he meets he made as much as possible of its farcical complications. In Mr. W. S. Maugham's *Penelope*, Miss Marie Tempest brought a delightful art to the help of slender material. Mr. Laurence Irving presented an adaptation of M. Brieux's *Hannefons* as *The Affinity*, a comedy with the trite lesson that illicit unions lead to trouble.

Plays from novels that held the stage for a time were *The White Sister*, which the late Marion Crawford made from his story of that name; *The Awakening of Helena Ritchie*, in which Miss Margaret Anglin did a great deal for Mrs. Deland's story, and *Septimus*, a dramatization of Mr. Locke's clever sketch of a modern Don Quixote. Other plays of 1909 which may be cited for purposes of record only were: E. C. Carpenter's *Barber of New Orleans*, produced by Mr. Faversham; Avery Hopwood's *This Woman and This Man*; Thompson Buchanan's *A Woman's Way*, to which Miss Grace George gave some charm; Lee W. Dodd's *The Return of Eve*; Clyde Fitch's insignificant farce, *The Bachelor*; J. Hartley Manners's adaptation from the German *The House Next Door*, a contrast of Christian and Jew to the latter's advantage; Sir Arthur Conan Doyle's *Fires of Fate*; Charles Klein's *Next of Kin*; Miss Mary Johnston's *Goddess of Reason*; Jerome K. Jerome's *New Lady Banstock*; Francis Wilson's *The Bachelor's Baby*; Roy Horniman's adaptation of W. J. Locke's *Idols*; Mr. Maugham's *The Noble Spaniard*; Leo Ditrichstein's *Is Matrimony a Failure?* and a roaring farce by Miss Mary R. Rinehart and Avery Hopwood called *Seven Days*, that achieved success out of proportion to its merits.

In England the important plays of the year were Pinero's *Mid-Channel*, a strong, if at times unpleasant, story of a woman who sacrifices everything to her husband's craving for worldly success; W. S. Maugham's *Smith*, a serious attack upon the vices of society; Rudolf Besier's *Olive Lattimer's Husband*; Ronald McDonald's melodramatic *The Chief of Staff*; R. C. Carton's farce comedy, *Mr. Ureedy and the Countess*; the same author's *Lorrimer Sabiston, Dramatist*; and Maeterlinck's fairy fanta-



GLYDE FITCH



Courtesy of the "Review of Reviews"

HELENA MODJESKA



BENOIT-CONSTANT COQUELIN



Copyright by Aimé Dupont

HEINRICH CONRIED

**FOUR NOTABLE PERSONS WHO DIED IN 1909
DRAMA**

tasia, *The Blue Bird*.—Henry James's comedy, *The High Bid*, was tried and called by the critics a delightful talk in three acts. George Bernard Shaw found no particular enthusiasm awaiting his *Admirable Bashville*.

English men of letters have devoted much thought and work during the year to the scheme for a Shakespeare National Theatre. With the Lord Mayor of London in the chair, a meeting was held, at which the project took definite shape and preparations are under way for raising the money necessary for the building and endowment of an establishment that will be an honor to the British stage.

Le Scandale, by Henry Bataille, was perhaps the most important new play seen upon the Paris stage this last year. A fairly good woman, wife and mother, falls under the fascination of a blackguard, by whom she is dragged in the mire. It is a wonderfully clever study of the expiation paid by a woman for one moment of folly. Mme. Berthe Bady and M. Lucien Guitry played the leading parts with consummate skill. *Le Foyer*, of Octave Mirbeau; *Connais-toi* of Paul Hervieu; *La Furie* of Jules Bois; *La Route d'Emeraude*, by Richepin, and a romance of René Fauchois, with Beethoven as the chief figure, were some of the other French plays of more than momentary interest. *La Rampe* (*The Footlights*), of Henri de Rothschild, was a curious study of the evil effect of stage life upon a woman's character. *Un Ange*, by Alfred Capus, depicted with unsparring realism the butterfly of Parisian life. Mme. Bernhardt lent her art to a portrayal of Jeanne d'Arc in a play by Emile Moreau. The distinguished French actress also appeared as the author of a drama, *Cœur d'Homme* (*Heart of Man*), in which she elaborates the idea that man is by nature polygamous and that marriage often hinders rather than helps him. *Jarnac*, a romance dealing with the loves of Francis I., offered the Odéon Theatre an opportunity to give a capital picture of French manners under the gallant monarch. *Papillon*, by Louis Benière, was a clever study of French workmen and aristocrats brought in touch by means of a will that leaves to an old stone-cutter the fortune which the aristocrats think should belong to them. Paul Bourget, in *La Barricade*, shows this class strife from another angle of vision. In *La Maison de Danses*, Paul Reboux follows the picturesque fortunes of another Carmen.

Gerhart Hauptmann's *Griselda* was the noted production of the season in Germany. The distinguished poet makes the story of Patient Grisel the groundwork for a play of passion that failed to satisfy his admirers. Neither was *The German King*, a fervidly patriotic drama by the late von Wildenbruch, a success, notwithstanding all the efforts of Kaiser William, who staged this Hohenzollern eulogy with munificence.

In Italy d'Annunzio's *Fedra*, produced in Milan, disappointed his friends. The best Italian critics characterize it as a tiresome series of feeble monologues.

During 1909 the American stage lost by death Clyde Fitch, a playwright of indefatigable industry and unquestioned capacity for the presentation of commonplace types. Mme. Helena Modjeska, whose art in Shakespearean comedy will long be remembered with pleasure, also passed away during the year. In France the

death of both the Coquelins left a void hard to fill. Constant Coquelin was perhaps the most accomplished comedian of his time.

The American stage may also be said to have suffered in the retirement of William Winter after forty years of service as dramatic critic of the New York Tribune.

DREDGING. For the important harbor improvements in progress in ports of the world various types of dredging machinery were being used in 1909 and the years immediately preceding. On the Fraser River, British Columbia, there was used a Fruehling dredge, purchased in 1908, where a scraping device or combined with a suction pipe and valves enabled the amount of water mixed with the mud and sand to be controlled. This dredge traveled from Europe via the Suez Canal and Japan and reached Victoria March 2, 1909. Of suction or hydraulic dredges the United States government maintains a number on such important works as New York Harbor, the Passes of the Mississippi River, Galveston Harbor, and the Columbia and Willamette Rivers in Oregon. In 1909 there were 24 in use, ranging from the *Gedney*, built in 1887, to the *Navesink*, *Raritan*, *Clatsop*, and *Galveston*, built in 1908. The first two were employed on the Ambrose Channel of New York Harbor (see HARBORS) and on steel vessels 290 feet in length, with two 20-inch pumps capable of dredging 10,000 cubic yards daily. The *Clatsop*, leaving Philadelphia December 9, 1908, made a voyage under her own power around Cape Horn to the Pacific coast, reaching Portland, Ore., on April 20, after a trip of 132 days, 54 of which were spent in ports, and on June 25, 1909, began dredging in the Columbia River. The *Clatsop* is a steel vessel 180 feet in length, with two 18-inch pumps and a daily dredging capacity of 1910 cubic yards. The *Galveston*, 304 feet in length, with two 20-inch pumps, was used during the year at Galveston Harbor, Texas. The huge dredge, *Leviathan*, of 8500 tons, which was constructed in 1908 for the Mersey Docks and Harbor Board of Liverpool, was in active use during 1909 and was one of a fleet of five at work on the Queen's and Crosby Channels from which in a year 12,500,000 tons of sand were removed. The *Leviathan*, which is a twin-screw, self-propelling, sand pump, hopper dredger, has a capacity of 10,000 tons or 180,000 cubic feet. Its machinery was stated to be equal to filling its hoppers with such a load of clean Mersey sand in fifty minutes, and in actual work during the year it removed 70,000 tons in a single day and 300,000 tons in a week. Such work by suction dredgers has resulted in deepening of the Queen's Channel from 25 to 27 feet at low water over a width of 800 feet.

During the year an unusually large elevator dredge was in operation in the entrance channel to Boston Harbor, taking the place of a dipper dredge previously used on this work, which involves excavation to a depth of 35 feet below low water level, or at high tide working in a depth of 50 feet of water. The depth and exposure to weather made it advantageous to employ an elevator dredge, a type that has been used but rarely in the United States for such work, but has been successfully employed in Europe. The machinery of the *Denver*, as this dredge was named, was installed in a vessel with heavy oak timbers 242 feet in length,

with a beam of 36 feet and a depth of 21½ feet, having engines of 700 horse-power. The buckets, each of 1½ cubic yards capacity, run in a ladder frame at a rate of 14 buckets per minute, so that the dredging capacity with full buckets is 1100 cubic yards an hour. The bucket chain is drawn by a double tandem compound steeple engine with cylinders 12 x 16 x 18 inches and separate from the engines driving the propeller shaft. The dredged material is discharged through a hopper and chute into scows alongside. A continuous feed over the bottom is obtained by steam winches acting on the mooring lines and a width of channel up to 700 feet can be made at one time. The ordinary yardage excavated in a single day was about 8000, with a record under favorable conditions of 10,800. In a single run lasting 55 minutes 1475 cubic yards were excavated.

DROUGHT. See **FORESTRY.**

DRUM, RICHARD COULTON. An American army officer, died October 14, 1909. He was born in Greenborough, Pa., in 1825, and studied for a time in Jefferson College. At the outbreak of the Mexican War he was studying law, but he at once enlisted as a private in the Pennsylvania Volunteer Infantry. In April of the following year he joined the Ninth Infantry as a second-lieutenant and fought in many of the important engagements of the war. For bravery at Chapultepec he was brevetted first lieutenant. Following the war he served in the South and at Leavenworth, Kansas, and was made a first-lieutenant in 1850. He took part in many important campaigns against the Indians. In 1850 he became adjutant and artillery officer at the artillery school at Fort Monroe. He was appointed assistant adjutant-general and in 1861 was assigned to duty at San Francisco, where he rendered many useful services in connection with the Indians and the Mormons, who during the Civil War were troublesome. In 1865 he was brevetted brigadier-general and in 1869 was made a colonel. He served with General Meade and with General Hancock until 1873, when he was sent to Chicago as assistant adjutant-general of the Division of Missouri. He took vigorous measures to prevent mob violence during the threatened labor troubles of Chicago in 1877. In 1878 he was transferred to the adjutant-general's office in Washington and in 1880 was promoted to be adjutant-general, with the rank of brigadier-general. His proposal in 1887 to return captured battle-flags to the Southern States caused a considerable sensation. President Cleveland approved the proposition, but rescinded the order when protests from the Grand Army of the Republic and others showed strong sentiment against it. He was retired for age in 1889. General Drum was one of the founders of the Army Mutual Aid Association, and for more than twenty years its president.

DRURY, JOHN BENJAMIN. An American Dutch Reformed clergyman and editor, died March 21, 1909. He was born at Rhinebeck, N. Y., in 1838, and graduated from Rutgers College in 1858, and from the New Brunswick Theological Seminary in 1861. He held a pastorate at Ghent, N. Y., from 1864 to 1887. In the latter year he became editor of the *Christian Intelligencer*, in which position he remained

until his death. In 1886 he was president of the General Synod of the Reformed Church. He was a delegate at many important conferences and was Vedder lecturer at the New Brunswick Theological Seminary in 1883. Among his published works are: *Historical Sketch of the First Reformed Church of Ghent, N. Y.* (1876), and *Truths and Untruths of Evolution* (1884).

DRY DOCKS. The Pearl Harbor dry dock, seven miles west of Honolulu, Hawaii, for which a contract was awarded in 1909, promised to be the largest masonry dry dock in the world. Its plans called for a structure 1200 feet in length, or capable of taking the largest vessels, and at the same time it is to be divided in the centre by a gate, so as to handle two smaller ships simultaneously. It was determined to construct at the beginning only one-half, or a portion 589 feet in length from outer sill to coping, but with sufficient depth, 44 feet, and width at bottom 93 feet. The new dock was being excavated in a coral formation of irregular character, the total amount required being upwards of 200,000 cubic yards, exclusive of dredging. It will be built of concrete, and will require of this material 71,000 cubic yards. The amount available for the construction was \$2,000,000. The new dock will form the nucleus of an important United States naval station at Pearl Harbor, which is four miles from the sea and is reached by a channel dredged by the United States government at an expense of \$3,500,000. Work was begun during the year on the largest dry dock in the East at Singapore, at an estimated cost of \$2,000,000. It was to be 852 feet in length, 128 feet wide at the entrance, and have a depth of 34 feet over the sill. In addition to its commercial utility this new dock was expected to be of great assistance to the British fleets in Eastern waters. This dock is but a portion of extensive harbor improvements contemplated at this port, which involves also the reclamation of 80 acres of foreshore, the construction of a quay 6000 feet in length, and a wet basin of 25 acres. It was estimated that the entire project would cost about \$15,000,000 and would involve for its completion some nine years.

DUBUFE, EDOUARD MARIE GUILLAUME. A French artist, died May 27, 1909. He was born in Paris in 1853, and was the pupil of his father, Edouard Dubufe, and of Mazerolle. His most notable work was in large allegorical painting, but he was well known also as a painter of figures and portraits. Among his best known works are "Sacred and Profane Music" and "The Trinity of Poets." He decorated the ceiling of the foyer of the Comédie Française, and portions of the Hôtel de Ville and the Sorbonne. In 1889 he received a first class medal and in the same year was made a member of the Legion of Honor.

DUCEY, THOMAS JAMES. An American Roman Catholic clergyman, died August 22, 1909. He was born at Lismore, Ireland, in 1843. He came to the United States when but five years of age. He studied at the College of St. Francis Xavier, New York City, and the Theological Seminary at Troy, N. Y. He was ordained priest in 1868. After service at the Church of the Nativity and St. Michael's, he founded St. Leo's Church in New

York City in 1880, becoming its pastor. He was prominent in movements against municipal corruption and of philanthropic enterprises.

DUDLEY, WILLIAM WADE. An American soldier and public official, died December 15, 1909. He was born at Weathersfield, Vt., 1842. He served during the Civil War in the Nineteenth Indiana Volunteers. He was brevetted brigadier-general for distinguished services and was wounded at the battle of Gettysburg, losing his right leg. During the administration of President Arthur he was Commissioner of Pensions. In 1888 he became treasurer of the National Republican Committee and from 1889 to the time of his death he practiced law in Washington.

DUHAMEL, JOSEPH THOMAS. A Canadian Roman Catholic prelate, died June 5, 1909. He was born in Contrecoeur in 1841, and studied at Saint Joseph's College, Ottawa. In 1863 he was ordained priest and in 1874 became Bishop of Ottawa and was appointed Archbishop of Ottawa in 1886. Through his efforts the college at Ottawa was given the powers of a Catholic university.

DUNKERS or DUNKARDS. See BRETHREN, CHURCH OF THE.

DURAND, EDWARD DANA. An American economist, appointed in 1909 Director of the Census Bureau to succeed S. N. D. North. He was born at Romeo, Mich., in 1871, graduated from Oberlin College in 1893 and from 1895 to 1897 he was legislative librarian of the New York State Library. In 1898-9 he was assistant professor of administration and finance at Leland Stanford University. He was appointed Secretary of the United States Industrial Commission in 1900, serving until 1902. In the latter year he was appointed instructor in economics at Harvard University. He acted as special expert agent in the United States Census Office on street railways and electric light plants in 1902. From 1903 to 1907 he was special examiner in the Bureau of Corporations, and from 1907 to the time of his appointment as director of the census he was Deputy Commissioner of Corporations. He is the author of *Finances of New York City* (1898), and has contributed to economic and political subjects in various economic journals.

DURHAM, ISRAEL W. An American political leader, died June 28, 1909. He was born in Philadelphia in 1856, and was educated in the public schools. He learned the trade of brickmaking, but went into the flour business. In 1885 he was elected a police magistrate in Philadelphia, and was reelected in 1890. He was elected State Senator in 1897, and in 1900 was appointed State Insurance Commissioner. In 1908 he was again elected to the State Senate. Senator Durham was for many years the practical dictator of the municipal government of Philadelphia, and was one of the most powerful political "bosses" this country has ever known. His control of the machinery of government was so complete that until 1905 the efforts to break his influence were of almost no avail. His defeat came finally in the year mentioned. The United Gas Improvement Co. wished to have its lease renewed for 75 years for \$25,000,000. A deal was made between the company and Durham by which the ordinance providing for this was to be rushed through the Councils. Public in-

dignation was so aroused that Durham was thoroughly frightened, and the proposed lease was withdrawn. At the same time Durham announced his withdrawal from politics, and he remained in retirement until 1908, when he was elected to the State Senate, as noted above.

DUTCH EAST INDIES. The colonial possessions of the Netherlands, lying between the Asiatic continent and Australia.

AREA AND POPULATION. The area (in square miles) and population (1905) are reported as follows:

	Area	Pop., 1905
Java and Madura	50,775	30,098,008
Island of Sumatra:		
Sumatra, West Coast	31,788	1,308,471
Sumatra, East Coast	35,480	568,417
Benkulen	15,556	413,301
Tapanoel	16,251	204,269
Lampongs	11,338	156,518
Palenbang	53,716	796,354
Atjeh (Achén)	20,549	582,175
Riau Lingga Archipelago.....	16,378	112,216
Banca	4,473	115,189
Billiton	1,870	36,858
Borneo, West Coast	56,060	450,929
Borneo, South and East Dist.	157,585	782,726
Island of Celebes:		
Celebes	49,405	1,397,200
Menado	22,176	436,406
Molucca Islands	44,038	407,419
Timor Archipelago	17,782	308,600
Ball and Lombok	4,063	523,535
New Guinea to 141° E. Long.	152,428	240,000
Total	748,340	38,938,000
Total, 1900		37,734,000

The foregoing population figures for the most part are necessarily approximations, and the population of several unexplored regions is not included; the figures for Java and Madura, however, may be regarded as accurate. In 1905 Eurasians and persons of pure European blood numbered 80,910, mostly Dutch and mostly born in the East Indies; Chinese, 563,000; Arabs, 29,000; and other foreign Orientals, 23,000. The principal cities, with their populations in 1905, are: In Java, Batavia, the capital, 138,551; Surabaya, 150,198; Samarang, 96,600; in Sumatra, Palembang, 60,985; in Borneo, Banjarmasin, 16,708; in Celebes, Macassar, 26,145. The Dutch maintain religious liberty. In 1905 there were among the natives and other Orientals about 460,000 Christians. Missionaries (1906) numbered 205. For the education of Europeans and Eurasians, besides private schools, there are public elementary and middle-class schools, with upwards of 22,000 pupils. Government schools for natives are attended by about 135,000 pupils, and private schools by upwards of 100,500. Schools for foreign Orientals have over 12,000 pupils.

PRODUCTION, COMMERCE, ETC. The principal products are sugar, coffee, cinchona, tobacco, tea, indigo, tin, coal, salt, gums, bark, and spices. The total imports and exports in 1906 were valued at 234,888,000 guilders and 330,930,000 guilders respectively; in 1907, 247,270,000 and 364,559,000 respectively. Included in the foregoing figures are government imports and exports valued at 11,061,000 and 16,250,000 guilders respectively in 1906, and 14,625,000 and 17,008,000 respectively in 1907. The principal exports of merchandise were valued in 1907 as follows: Sugar, 100,142,000

guilders; tobacco, 55,451,000; copra, 25,132,000; petroleum, 21,844,000; gums, 19,248,000; tin, 17,329,000; coffee, 14,825,000; gutta-percha, 12,619,000; tea, 8,230,000; pepper, 7,211,000; rattan, 6,560,000; cinchona, 6,502,000; rice, 5,256,000; hides and skins, 4,299,000; nutmegs, 3,181,000. About three-fourths of the exports go to the Netherlands. In 1907 the total mileage of the railways reported was 3157, of which 2595 miles were in Java and 562 miles in Sumatra; telegraph lines, 8882 miles, with 12,025 miles of wire and 569 offices; post-offices, 1620.

GOVERNMENT, FINANCE, ETC. For administrative purposes the Dutch East Indies are divided into two parts, the one comprising Java (with Madura), where the Dutch control is complete, and the other, the remaining islands, or "Outposts," in some of which Dutch authority is merely nominal. There is a governor-general (J. B. von Heutsz since 1904) for the whole colony, in whom is vested both executive and legislative power, subject to the approval of the home government. He is nominated by the sovereign and is assisted by a council of five members. The colony is divided into Residencies (Java and Madura) or districts, administered by either Dutch officials or native chiefs. The Residents and other Dutch officials govern not so much directly as through native functionaries.

There is a colonial army (separate from the home army), which on January 1, 1909, numbered 35,208 officers and men, of whom 10,785 were Europeans, recruited by volunteers from the home forces. In 1909 that part of the Dutch navy stationed in East Indian waters numbered 17 effective vessels, aggregating 23,159 tons.

Revenue is derived chiefly from taxes, monopolies (opium and salt), and the sale of products of government lands and mines. Of the expenditure, about one-fourth is for general administration, and another fourth for the army and navy. Revenue and expenditure in 1908 amounted to 175,142,396 guilders and 181,746,012 guilders respectively. For 1909 estimated revenue was 181,540,117 guilders and estimated expenditure 193,938,592 guilders.

In the summer a violent earthquake occurred in Upper Padang, resulting in a loss of life reported at 200.

DUTCHER, SILAS BELDEN. An American capitalist died February 10, 1909. He was born in Springfield, N. Y., in 1829, and was educated in the public schools and in Cazenovia Seminary. He taught school from 1845 to 1851, was engaged in railroad work from 1851 to 1855, and from the latter date to 1868 was in mercantile business in New York City. He soon entered politics, and in 1860 was chosen Supervisor of the city and county of New York. He resigned from this office and removed to Brooklyn, where he became one of the leading figures in local politics. He served as chairman of the Republican County Committee for four years (1869-1873), and during that time he, with General B. F. Tracy and General James Jourdain, practically ruled the city. In 1872 he was appointed pension agent for the eastern district of New York, and in 1877 he was made Appraiser of the Port. In 1880 he resigned to become State Superintendent of Public Works. Mr. Dutcher was an important figure in the political, financial, and

philanthropic movements of New York. He was a member of the Charter Commission for the Greater City, and was a director and trustee in many important financial institutions and was largely interested in many philanthropies.

DUTCH GUIANA, or SURINAM. A colony of the Netherlands on the north coast of South America. Area, about 49,845 square miles (some authorities give 46,000). The population is estimated at 84,113. Capital, Paramaribo, with 34,870 inhabitants. There were in 1906 22 public schools, with 2487 pupils, and 36 private schools, with 5285. There are also denominational schools. At the end of 1906 the population was divided according to religions as follows: Moravian Brethren, 27,159; Roman Catholics, 15,529; Hindus, 12,467; Reformed and Lutheran, 9527; Mohammedans, 8418; Jews, 1049. In 1906 the sugar produced amounted to 12,635,400 kilos; cacao, 1,310,914; rice, 1,496,163; corn, 898,127; coffee, 218,000; rum, 818,585 litres, and molasses, 1,896,519 litres. Gold is mined. The imports and exports for 1907 amounted to 6,903,000 and 5,838,000 guilders (1 guilder = 40.2 cents) respectively. The export of gold in 1906 was valued at 1,611,966 guilders. The colony had about 29 miles of railway in 1907. Shipping in 1907, 211 vessels of 283,000 tons. The revenue and expenditure in 1908 were 3,547,000 and 4,402,000 guilders respectively, against 3,496,000 and 4,373,000 in 1907; subvention (1908), 855,000, against 879,000 in 1907. Estimated revenue and expenditure for 1909, 3,957,350 and 4,775,854 guilders; subvention, 809,302. The colony is administered by a governor, assisted by an executive council appointed by the Queen. The legislative body—the Colonial States—is mainly representative. The Governor is R. D. Fock.

DUTCH REFORMED CHURCH. See REFORMED CHURCH IN AMERICA.

DUTCH WEST INDIES. See CURACAO and DUTCH GUIANA.

DYNAMO ELECTRIC MACHINERY. The developments in dynamo electric machinery for 1907 and 1908 were largely confined to changes in large turbine-driven alternators, the improved design of alternating-current railway motors, the introduction of silicon steel, and the application of storage batteries to alternating-current circuits by means of a variable ratio converter. During 1909 the use of turbine-driven alternators has been greatly extended and the available capacities have reached the remarkable value of 20,000 kilowatts. No great advances have been made in the economy of such units and their hold on the central station field is rather to be attributed to their convenience and their excellent adaptation to operation in parallel on complicated systems. Combinations of reciprocating engine units and low pressure turbine units have fully justified the claims of their promoters as a means of greatly increasing the output and efficiency of existing stations. Much progress has been made in the design of producer gas units capable of employing the cheapest grades of fuel. Units of this type have proven a great aid to economy in small stations. European engineers have introduced alternators operated at 30,000 volts, but American designers have preferred to remain within the former limits of 15,000 volts in order to insure reliability.

A promising type of variable speed induction motor has been brought out during the year. It has a stator and squirrel cage rotor of the usual forms separated by a greatly enlarged air gap. This gap is occupied by a "spinner" of cylindrical form, built up of steel laminations. Its outer surface bears a squirrel cage winding, which serves as a secondary to the three-phase stator windings. On its inner surface is a three-phase coil winding, which serves as a primary to the squirrel cage of the main rotor. With the spinner held stationary the stator is on open circuit and the rotor is driven by the inner winding of the spinner. When the stator is excited the spinner revolves and exercises either a cumulative or differential control over the speed of the rotor. By a proper choice of the number of poles on the stator and the inner winding of the spinner the motor is given three inherent speeds, with intermediate steps obtained by resistance control.

The construction and successful use of small alternators giving a frequency of 100,000 cycles per second was a mechanical and electrical achievement of exceptional order. The greater part of the progress of 1909 is found in the higher refinements of the commoner types of apparatus. For example, the commutator troubles, which had hitherto been the bugbear of railway motor operation, have been practically eliminated and satisfactory motor performance is now largely a matter of heat dissipation.

In the realm of hydro-electric generators the year was especially noteworthy for the attention given to the equipment of low-head sites. Units of 4000 kilowatts are now available for heads as low as 7 feet.

DYSENTERY. See TROPICAL MEDICINE.

EARTHQUAKES. The record for 1909 showed about the average number of earthquakes throughout the world, but fortunately none to rival the disastrous occurrences of the few preceding years. The Messina earthquake of December 28, 1908, continued to share general attention as the full details were gradually revealed in authoritative accounts. These substantiated in the main the early estimates of damage and loss of life, and there is no doubt that it marked the culmination of recent, if not all historical, catastrophes attributable to natural forces. Of special interest to students of seismology was the completion of the final report of the California Earthquake Commission, the first volume of which was brought out recently by the Carnegie Institution. Few earthquakes have afforded such opportunity for investigation since the development of more exact methods of observation, and the report should prove of great value from a practical as well as from a scientific standpoint.

The following list includes the principal disturbances during the year: *January 23.* A destructive earthquake in Central Asia; felt in Chinese Turkestan, but probably centred in the province of Luristan, Persia, where 60 villages were reported to have been destroyed, with from 5000 to 8000 deaths; the earth tremors were registered all over the globe. *February 17.* A slight shock reported throughout Porto Rico; small property loss. *May 17.* Reported shakings in provinces of Tacna and

Arica, Chile, on this and previous days. *June 8.* A heavier earthquake in the same region as the last, partially destroyed the city of Copiapo. *July 8.* Severe shock experienced in Turkestan and northern India; principal damage at Kerki, Kurgan and Chitral. *September 22.* Slight earthquake in Calabria and Sicily, sufficient to overturn some of the ruins left by the Messina disturbance of 1908. *October 20.* American and European seismological stations reported a strong earthquake, which was not traceable to any known source on land and was probably of submarine origin; the approximate locus seemed to have been off the West Indies; additional shocks from the same region apparently were registered at intervals for the next two months.

SEISMOLOGY. In an investigation of the Messina earthquake made under the auspices of the Italian Geographical Society, Dr. Mario Baratto found that the chief causes for its disastrous results were the damaged condition of the buildings due to preceding shocks, the nature of the foundations, and the wretched materials used in the structures, which were designed, moreover, after plans least adapted to seismic conditions. As has always been the case, the buildings that rested upon sand and loose rocks experienced the greatest damage. The actual loss of life at Messina and Reggio is still unknown, but outside of these cities the maximum mortality was at Cannitello, where the rate was 43.7 per cent. Elsewhere the rate ranged from less than 10 to 30 per cent. In the matter of intensity the shock was far inferior to the Calabrian earthquake of 1783.

The possibility of forecasting the occurrence of earthquakes was discussed in an illuminating paper by G. K. Gilbert, a member of the commission that investigated the California earthquake. Classifying the factors to be considered under the general categories of time and place, Professor Gilbert states that present means suffice to delimit with approximate accuracy the regions which are liable to heavy destructive shocks (mallooseisms). This class of disturbances is a concomitant of tectonic or mountain-making changes, the effects of which are exhibited superficially in the fracture or faulting of rocks. Aside from the information derived from human experience, there are several criteria applicable to the recognition of such regions. The existence of high mountains is *per se* evidence of seismic activity, since lofty mountains must be considered relatively youthful features (or they would have been planed down by erosion), and under the principle of continuity young mountains of uplift are presumably in a state of growth. A conspicuous example in support of this generalization is the Mount St. Elias group, which rises 20,000 feet from its base, and has been shown by Russell to have added to its height in recent geological times; the group has been the scene of repeated violent disturbances within the historical period. The presence of fault scraps along the bases of block mountains, so recent in origin that they have not been obliterated by erosion, is equally suggestive of activity. Again a rift topography like that in California, which was brought into prominence by the recent disturbance, affords evidence of the occurrence of earthquakes. With these aids and with the benefit of records

extending over a considerable period of time the recognition of mallosoismic regions offers no insuperable difficulties. On the other hand, the relation of earthquake danger to time is much less definite, and there is less promise of future accomplishment in that field. The various hypotheses of rhythmic occurrence, alternation between different parts of a region, and precipitating factors have not been sufficiently tested, however, to permit final judgment of their value. On the whole it is more important to know the places of danger than the times, since if the former are recognized the adoption of precautions in building and construction will insure, not only the diminution of financial loss, but also of life.

A constant feature of earthquake records made by seismographs is the division of the tracing into distinct parts, which have come to be known as the first preliminaries, second preliminaries and main phases. This differentiation is explained by Montessus de Bellore as due to the varied character of the vibrations that are set up by the disturbance. The first preliminaries, which travel at a maximum speed, are probably propagated as longitudinal waves, the second preliminaries as transverse waves, while the main phase consists of a multiple wave motion that represents the destructive shock.

EAST AFRICA, BRITISH. See **BRITISH EAST AFRICA.**

EAST AFRICA, GERMAN. See **GERMAN EAST AFRICA.**

ECLIPSE. See **ASTRONOMY.**

ECONOMIC ASSOCIATION, AMERICAN.

A learned society, founded in 1885 for the encouragement of economic studies and the publication of papers thereon. The Association holds annual meetings in the latter part of December in different cities in the United States. The meeting in 1909 was of particular importance and interest, as it celebrated the twenty-fifth anniversary of the Society's founding. It was held in conjunction with the American Historical Association and several other societies in New York City from December 27-31. Many men of high public position were present, including Governor Hughes, Mayor McClellan, Hon. Joseph Choate, the President and Board of Trustees of Columbia University, and others. Among the foreign economists and representatives of learned societies were Hon. James Bryce, Ambassador from Great Britain; Mr. Henry Higgs, representing the Royal Economic Society of London; Professor James Mavor, of the University of Toronto, and Mr. James Bonar, Deputy Master of the Canadian Branch of the Royal Mint. Among the important addresses and papers read were the following: "Historical Account of the Founding of the Association," Professor Richard T. Ely, of the University of Wisconsin; "The Work of the American Economic Association," by Professor Hadley, of Yale University, and others; "Dynamic Economics," by Signore Pantaleoni, of Italy; "Theory of Wages," by Professor F. W. Taussig, of Harvard University; "The Valuation of Public Service Corporations," by Henry C. Adams, of the University of Michigan; "A Discussion of Trusts," by Francis Walker, of Washington, D. C., Victor Morawetz, of New York City, Professor J. W.

Jenks, of Cornell University, and others; "A Discussion of the Subject of Taxation," by Professor E. R. A. Seligman, of Columbia University, Henry Higgs, of London, and Lawson Purdy, of New York City. The attendance at this meeting was the largest in the history of the Association. By reason of the unusual increase in membership in the preceding year over 400 new members were added. By a distinct change of publication policy voted at the meeting of 1909 it was decided to establish not later than January 1, 1911, a new economic journal in place of the two sets of publications issued by the Association and to call this new journal *The American Economical Review*, to be in charge of an editor elected by the Association, and six associate editors. New enthusiasm was shown by all the members present for the Association and its work. The officers elected to serve for the year 1910 were as follows: President, Edmund J. James, of the University of Illinois; Vice-Presidents, Frank L. McVey, University of North Dakota; Herbert J. Davenport, University of Missouri; Alvin S. Johnson, University of Texas; Secretary, T. N. Carver, Harvard University.

ECONOMIC ENTOMOLOGY. See **ENTOMOLOGY.**

ECONOMIC GEOLOGY. See **GEOLOGY.**

ECUADOR. A South American republic on the Pacific coast between Colombia and Peru. The capital is Quito.

AREA AND POPULATION. The 16 provinces and one territory (the Galapagos Islands, area, 2400 square miles, population 400), have an estimated area of 118,627 square miles; estimated population, 1,272,000 or, including uncivilized Indians, 1,400,000. The greater part of the population is Indian; mestizos number about 400,000, and persons of unmixed white descent are few. The principal towns, with population, are: Quito, 50,841 (1906); Guayaquil, 51,000; Cuenca, 30,000; Riobamba, 18,000. In 1909 Quito was reported to have about 75,000 inhabitants, and Guayaquil between 75,000 and 80,000. Primary instruction is free and compulsory. Public primary schools number about 1100. There are some provisions for secondary, higher, and technical education. The Roman Catholic is the established church of the state.

INDUSTRIES. Agriculture is the principal industry, and cacao the staple product. The cacao plantations are upwards of 5000 in number, with some 61,000,000 trees. The crop in 1907 amounted to 19,670,000 kilos; in 1908, 31,900,000 kilos; in 1909 (estimated), 29,000,000 kilos. Rice is produced annually to the amount of about 40,000,000 pounds, which is not quite enough to supply the home demand. The estimated annual production of coffee is about 7,000,000 pounds; sugar, 16,000,000 pounds; vegetable ivory nuts, 48,000,000 pounds; rubber, over 1,000,000 pounds. Various metals and minerals occur, including gold, silver, copper, iron, lead, coal, and sulphur, but mining has not attained any great importance. The leading manufacturing industry is the plaiting of Panama hats. There are a number of foundries, sugar refineries, flour mills, and ice plants, and establishments for the manufacture of various articles of common use, as matches, liquors, leather goods, soap, cotton and woolen blankets, and bags. These factories are mainly in Guayaquil and Quito.

FOREIGN COMMERCE. Imports and exports have been valued in sucres as follows:

	1906	1907	1908
Imports.....	17,011,605	19,699,673	20,554,731
Exports.....	21,964,714	22,906,954	26,559,207

The principal imports are textiles, food-stuffs, iron manufactures, clothing and wines and liquors. The leading exports in 1908 were: Cacao, 70,662,042 pounds, valued at 20,877,000 sucres (over one-half to France); vegetable ivory, 1,600,000 sucres; Panama hats, 1,599,000 sucres; rubber, 1,207,000 sucres; coffee, 1,138,000 sucres; hides and skins, 388,000 sucres. Imports from and exports to the countries commercially most important were valued as follows: Great Britain, 7,204,000 sucres and 3,523,000 sucres respectively; Germany, 4,298,000 and 1,984,000; United States, 4,097,000 and 7,743,000; France, 1,477,000 and 10,105,000.

COMMUNICATIONS. In 1908 there were 325 miles of railway and 2570 miles of telegraph line. The first train from Guayaquil over the newly completed road to Quito (286 miles) reached the capital June 25, 1908. On the 6th of the following August, work was begun on the line from Huigra to Cuenca (about 92 miles), to be completed within 28 months. This road will pass through the rich coal and agricultural district of southern Ecuador, connecting it with Guayaquil and Quito. A railway is projected from Bahia de Caraquez, a port about 100 miles north of Guayaquil, to Quito; one from Vargas Torres to Ibarra (about 125 miles); one from Manta to Santa Ana; and another from Ambato to the Arajuno River. As projected, the last three lines mentioned are to use electric motive power and be open to traffic in 1914. There is considerable river navigation. During 1907 entries at the port of Guayaquil aggregated 202 steamers and 8 sailing vessels, with a registry of 422,344 tons; more than half were British, 57 Chilean, 37 German, and only one American. In 1908 184 vessels of 390,333 tons entered, and 185 of 390,336 tons, cleared.

FINANCE. The unit of value is the sucre, worth 48.665 cents. Revenue and expenditure in sucres are reported as follows:

	1906	1907	1908
Revenue.....	12,188,000	12,724,567	12,575,700
Expenditure...	13,237,180	15,401,785	12,674,590

About 70 per cent. of the revenue is derived from import and export duties. The estimated expenditure for 1908 was 2,077,590 sucres less than the figure given above; the larger items of the estimate were: War and marine, 2,280,000 sucres; debt, 1,950,000; public instruction, 1,120,000; public works, 1,000,000. The outstanding foreign debt in December, 1908, is reported at 10,808,000 sucres; internal debt, October, 1908, 8,386,135 sucres.

NAVY. There are one torpedo launch, one transport, and one lighter, with about 180 men.

ARMY. The estimated strength of the active army is 4350 officers and men, to which may be added a National Guard of about 90,000. The laws providing for compulsory service are not rigidly enforced.

GOVERNMENT, ETC. The executive authority

is vested in a president, who is elected for a term of four years and is assisted by a cabinet of five members. The legislative power devolves upon a congress of two houses, the Senate and the House of Representatives. The President in 1909 was General Eloy Alfaro, who was inaugurated January 1, 1907. The provinces are administered by governors appointed by the President.

In 1909 a serious railway accident occurred on February 24, near Riobamba, where a train left the track and was thrown over a cliff, killing twenty and injuring forty others.

ECUADORIAN EXPOSITION, NATIONAL. See EXPOSITIONS.

EDDY, WILLIAM ABNER. An American meteorologist, died December 26, 1909. He was born in New York, in 1858, and spent his boyhood in Belvedere, Ill. He took a preparatory course in Chicago University. In early life he engaged in business as an accountant and in 1890 he began experiments in kite-flying. He was especially interested in the currents and layers of air which are constantly shifting about, and in endeavoring to arrive at some method for using them to advantage. He sent up many kites in various parts of the country of his own design and arrangement in carrying out his experiments. In the summer of 1896 he conceived the idea of sending up kites with a camera attached and taking pictures from a great height. In 1903 he made a miniature aëroplane, modeled after the plan of Alexander Graham Bell's, and by means of a cord treated with a solution of saltpetre he bound the model to an immense kite. Before sending up the kite he set fire to the cord, which burned slowly and released the aëroplane at a considerable height. He arrived at the conclusion that an added weight and a reliable motor was all that was needed to prove to the world the possibility of the aëroplane as a means of traveling. Mr. Eddy sent some of his kites to a height of nearly 7000 feet. He made a record of the temperature marked on his thermometers at different heights and asserted that these temperatures foretold what changes of temperature might be expected within the next twelve hours on the earth below. He was interested in the problem of flotation in the air and made many experiments in that direction. He constructed also various devices to measure the tremors of the earth. These consisted of tops suspended from the ceiling on strings and spinning on plates of smoked glass. Any trembling of the string was recorded by the tops on the glass.

EDUCATIONAL ASSOCIATION, NATIONAL. See EDUCATION IN THE UNITED STATES.

EDUCATION IN THE UNITED STATES. The United States Commissioner of Education reported in 1909 that 16,890,818 pupils were enrolled in the public schools in 1908. They were accommodated in 259,355 schoolhouses, valued at \$858,655,200, and instructed by 104,414 men and 376,902 women teachers who received \$202,047,814 in salaries. Other expenses brought the total expenditure up to \$336,898,333, an average of \$28.25 per pupil or \$3.90 per capita of the entire population. The equipment is improving and the number and the salaries of teachers are more than keeping pace with the growth of the country. But so long as one-fourth of the States spend less than \$15 per pupil and one-fourth spend more than \$35 there is opportunity for further development. The

variation between the lowest expenditure, \$6.37, and the highest \$72.15, is obviously too large. The reports of the new Commissioner of Education have been widely appreciated for their prompt appearance, the condensation and interpretation of their statistics, and their timely discussion of significant topics. The practically unanimous demand of educators has not, however, yet moved Congress to make possible a large extension of the Bureau's work. Instead of the requested doubling of its income of \$67,500, an increase of only \$4700 was granted for 1909-10.

The forty-seventh annual convention of the National Education Association, meeting in Denver in July, declared its belief in: (1) education as the chief foundation of democracy, (2) the development of commercial and industrial training, along with (3) cultural opportunities for all, (4) the improvement of supervision and teaching and the exclusion of secret organizations from schools, (5) the importance of training for citizenship, (6) of the work of the American School Peace League, of (7) more systematic attention to physical education, (8) better training, longer tenure and more nearly commensurate compensation for teachers, (9) the use of school equipment for community interests, and (10) the consolidation of rural schools. The twelfth annual conference for education in the South, meeting in Atlanta in April, found that high schools in the region were increasing at the rate of 100 a year and State and local appropriations at the rate of more than two million dollars annually, and adopted resolutions favoring the improvement of county supervision, the better training of teachers, and increased appropriations for the National Bureau of Education. Especial attention was given to the problem of rural education and to the measures for its improvement which have already been undertaken by 26 States,—consolidation of schools, text-book commissions, better distribution of appropriations, better supervision, free transportation of pupils, and compulsory conventions of teachers. Two-thirds of the population are affected by these measures.

Vocational and civic training also were centres of much attention during the year. The general withdrawal of pupils from school immediately after the age for compulsory attendance, the rapid development of private technical institutions, the efforts of the National Society for the Promotion of Industrial Education,—which held its third convention at Milwaukee in December—and their endorsement by the National Association of Manufacturers and, most cordially, by the American Federation of Labor—these were items of public opinion that appeared to demand immediate recognition. The investigations of the Massachusetts Industrial Commission, created in 1905, resulted in the collection and dissemination of important information upon the subject and the reorganization of the Massachusetts Board of Education under a commissioner favorable to industrial education. The New York State Department of Education outlined a simplified curriculum for the elementary school to be followed by commercial and industrial as well as academic high schools. Similar changes were approximated elsewhere. It may be said, therefore, that in 1909 the desirability of vocational education in the public schools became generally acknowledged and its practical realization was undertaken,—one of the most far-reaching departures in the history of

American education. Similarly, the necessity for civic training was more widely discussed than ever before and more attention was directed to practical agencies for its attainment, such as the George Junior Republics, the "school cities" inaugurated in New York in 1897, and the "Rochester" or school civic club movement.

The fields of health, hygiene and physical education showed steady development. In forty-three cities school nurses give hygienic instruction in homes, in fifty-six nurses take children to dispensaries or instruct parents at the schools, ninety-eight distribute cards of hygienic instruction, 117 attend to dental and 170 to breathing defects. Most of these results have been attained in the last five years, many of them through volunteer organizations. Few such benefits are as yet available for pupils outside of cities. The Massachusetts State Board of Education and the New York City Bureau of Municipal Research have issued publications concerning the physical welfare of school children. Chicago, Boston and New York have had interesting results with open-air classes or with classes in rooms with wide-open windows. The temperature of all Chicago school rooms has been lowered and they are to be aired thoroughly several times a day. The United States Bureau of Education has issued a bulletin concerning the feeding of school children,—its ideal composition and service, the problems to be overcome, organizations which are working in the field, and systems and schools where progress has been made. The American School Hygiene Association and similar bodies continued to urge the general hygienic aspects of physical instruction and of athletics. Washington, New York, Boston and New Haven prohibited football in the schools. Boston required all high school pupils to learn to swim. New York placed physical training on a parallel with other branches in grading for promotion and graduation. The National Playground Association at its third annual congress, held in Pittsburgh in May, reported the establishment of playgrounds in more than 350 cities, and the support of the movement by municipalities, associations, institutions and settlements. A corresponding development in athletics, folk dances, festivals and pageants was also reported—a happy educational profiting from the pleasure of fulfilling national dramatic and play instincts.

Although college authorities found fortunate results in a similar coöperation with student secret societies, these were made a cause for expulsion or suspension from the schools of Chicago and Denver. California passed a law against such school organizations, but the Attorney-General of Michigan reinstated a pupil who had been expelled under a similar law. No other large question of discipline arose and none of morals. An American committee, appointed by the International Moral Education Conference which met in London in 1907, is at work upon a plan for moral education in the schools. Meanwhile the University of Wisconsin has published a plan successfully carried out in schools in that State and the superintendent of schools of Philadelphia is testing in that city a plan of the National Character Development League, of which he is president. A new law requires Illinois teachers to give weekly instruction in the humane treatment of animals. There are now 4703 Roman Catholic parochial schools with 1,197,913 pupils, both numbers representing a steady increase. Roman Catholics

in Kansas opposed the furnishing of free textbooks in the public schools. Hebrews in Chicago requested the school board to exclude from the schools certain hymns as hostile to their faith. The Religious Education Association at its sixth general convention in Chicago in February, reported encouraging progress in its propaganda for the closer coöperation of religious and educational forces, and the National Vacation Bible School Committee provided daily summer religious education in various cities.

Public and private high schools continued to develop toward a more harmonious relation with the colleges. In the field of mathematics an American branch of an International Commission on the Teaching of Mathematics is investigating the state and the tendency of such teaching in order to report recommendations for improvement to the International Congress of Mathematicians in Cambridge, England, in 1912. The American Federation of Teachers of the Mathematical and the Natural Sciences carried on investigations indicating that the teaching of physics might profitably use more practical applications and greater correlations with pupils' every day experiences, and that the teaching of biology might lead to a better understanding of the organic factors in environment and of personal and public hygiene. Public discussion of the conservation of natural resources and of vocational education has added a new industrial and commercial attitude to the teaching of geography, and economic views similarly modified the teaching of history. Dissatisfaction with the confusion of aims and methods in the teaching of English increased toward a promise of improvement. Some of the newer and more practical methods of teaching modern languages began to be adopted in teaching Latin and Greek. The acceptance of music as a field for school instruction continued to increase. The Bureau of Education reported that the fields of fine arts and art handicraft now controlled an annual expenditure of \$11,565,000, through public, private, evening, and summer schools, lectures, libraries and exhibits. Twelve States require drawing in the schools and thirty-one others encourage it.

The peculiar needs of children of recent immigrants received increasing attention. In New York City 76 per cent. of the school children have one foreign-born parent, 68 per cent. both parents foreign, 46 per cent. both parents non-English speaking, and 37 per cent. of the children are themselves foreign-born. Encouraging results have been attained by the labor camp schools of the Society for Italian Immigrants, the Baron de Hirsch English Schools for Immigrant Children, the French-American College in Massachusetts, and the Chinese Educational Commission's Schools in California. Negro education continued to depend chiefly upon private benevolence, as represented by the Southern Education Board, the Peabody, Slater and Jeanes endowments, and by special gifts. A speaking tour by Dr. Booker Washington, through Tennessee, South Carolina and Mississippi, and a number of reports before the Conference for Education in the South indicated, however, the beginning of more generous public appropriations. The Russell Sage Foundation's study of backward children found 15 per cent. of the children in the schools of 55 cities spending more than a year in the same grade. The sixth annual Conference on the Education of Backward, Truant, and Delinquent Children, meet-

ing in Buffalo in June, reported special classes for such children in many cities. Special schools for crippled and sick children were also reported. There was a growing movement to bring blind children into closer association in the schools with seeing children. The desire for vacation schools and night schools and for various forms of free education for adults continued to increase; and libraries and museums continued to seek closer and more fruitful relations with the schools.

The need for better salaries for teachers was kept to the fore, most conspicuously by the re-passage by the New York Legislature of a bill, vetoed in 1907, for equal pay for men and women in the schools of New York City. In vetoing the new bill, the Mayor appointed a commission to inquire into the relative cost of living of men and women teachers, and into the salaries of teachers in various cities. A preliminary report, late in December, held that to raise the salaries of women to equal those of men would increase the stipend of the minority of women who now receive the highest pay without aiding the majority who receive the lowest; to similarly raise the salaries of all women would cost \$11,000,000 a year; to reduce the salaries of the men would cause them to leave the schools. The commission suggested, therefore, a moderate increase for all women teachers, or a substantial increase for those in the lower grades, without reference to the salaries of men. New York and Boston continued their opposition to married women as teachers.

Chicago in July elected as superintendent of its schools, Mrs. Ella Flagg Young, a graduate of Chicago schools, a teacher for forty-seven years, a district superintendent from 1888 to 1899, professor of education in the University of Chicago from 1899 to 1905, and principal of the Chicago Normal School since that time. Two noted educators died during the year: Dr. William T. Harris, formerly United States Commissioner of Education, and Dr. Sheldon Jackson, Commissioner of Education for Alaska.

Among the educational publications of the year the following were prominent: *American Education* by Andrew S. Draper; *Impressions of American Education in 1908*, by Sara E. Bursall; *The American High School*, by John Franklin Brown; *Standards in Education, Including Industrial Training*, by Arthur Henry Chamberlain; *The Nature-Study Idea* (third edition), by Liberty H. Bailey; *American Playgrounds*, edited by Everett B. Mero; *Athletic Games in the Education of Women*, by Gertrude Dudley and Francis A. Kellor; *Psychology and the Teacher*, by Hugo Münsterberg; *How to Study*, by Frank M. McMurtry, and *Social Development and Education*, by M. V. O'Shea.

EDWARDS, WILLIAM HENRY. An American naturalist, died April 3, 1909. He was born in Hunter, N. Y., in 1822, graduated in 1842 from Williams College, and was admitted to the bar in New York City in 1847. He had become fascinated by the study of butterflies, and in 1846 made a trip up the Amazon, chiefly studying butterflies. He published in 1879, 1884 and 1897 three series on the *Butterflies of North America*, which were so costly as to be available almost exclusively in reference libraries. He contributed many entomological papers to scientific journals. He wrote, in 1900, *Shakesper, not Shakespeare*. A genealogy of the Edwards family was completed by him in 1903.

EGYPT. A country of northeastern Africa

nominally under the suzerainty of Turkey, but practically under the protection of Great Britain. The capital is Cairo.

AREA AND POPULATION. The total area, excluding the Egyptian Sudan, is about 400,000 square miles; but the settled and cultivated area (that is, the Nile Valley and Delta) covers only 12,976 square miles. The population, according to the census of June 1, 1907, was 11,189,978 (exclusive of the Bedouin nomadic population estimated to number 97,381), as compared with 9,734,405 in 1897. By nationality the population in 1907 was made up as follows: Egyptians, 10,903,677 (sedentary, 10,360,046; nomadic, 537,631); foreigners, 286,301, including: Turks, 69,725; Greeks, 62,973; Italians, 34,926; British, including Maltese, 20,853; French, including Tunisians, 14,591; Austrians and Hungarians, 7704; Russians, 2410; Germans, 1847; other Europeans, 2116; Persians, 1385; Sudanese, 65,162; others, 2809. Of Egyptians over ten years of age, 62.65 per cent. were employed in agriculture; of the foreign population, less than one per cent. Of the Egyptians, 16.27 per cent. were employed in various industries and trades. Of the foreigners 47.85 per cent. Forty-eight per cent. of the total number employed in the liberal professions were foreigners. The principal cities, with population in 1907, are: Cairo, 654,476; Alexandria, 332,246; Tantah, 54,437; Port Said, 49,884; Mansurah, 40,279; Assiut, 39,442; Fayum, 37,320; Zagaziz, 34,999; Damietta, 29,354; Kena, 20,069.

EDUCATION AND RELIGION. In 1897, of the sedentary Egyptian population over seven years of age, only 5.8 per cent. could read and write. In 1907 the number of kuttabs (native rudimentary schools) under government inspection was 4181, with 164,506 pupils, of which 2761 received grants-in-aid aggregating £E17,402. The various schools under the immediate direction of the government in 1907 were: Kuttabs, 143, with 10,561 pupils; primary schools, 34, with 8556 pupils; secondary schools, 4, with 1909 pupils; special and technical schools, 10, with 2063 pupils; professional colleges, 11, with 1441 pupils. Of all the pupils in these government schools, only 3158 were female, of whom 2666 were in kuttabs and 401 in primary schools. Exclusive of kuttabs, there were in 1908 735 schools, with 113,430 pupils; 335 schools, with 66,049 pupils, were Egyptian institutions, and the remainder were foreign. Of the total number of pupils, Mohammedans numbered 54,186; Copts, 28,961; other Christians, 22,908; Jews, 7149. According to the census of 1907, the population by religion was: Mohammedans, 10,269,445; Christians, 881,692 (including 743,981 Orthodox Greek, 72,320 Roman Catholics, 37,446 Protestants, 27,937 Oriental); Jews, 38,635; others, 206. The two great seats of Koranic learning are the Mosque and University of El Azhar, at Cairo, with about 10,000 students, and the Mosque of El Ahmadi, at Tantah, with over 5000 students.

PRODUCTION. Of the industries, agriculture is by far the most important. In general, mining is carried on to a very limited extent, but about 1,000,000 tons of salt are produced annually and large numbers of turquoises are obtained in the Sinai Peninsula. The cultivated portion of the country is confined to the area annually inundated by the Nile or capable of being irrigated by canals. Irrigation and the

conservation of the Nile waters are facilitated by extensive reservoir works, consisting of a dam at Assuan, a barrage and lock at Assiut, and a barrage at Zifta and at Esna. In 1907 6,426,000 feddans (1 feddan = 1.03 acres) were under cultivation. The principal crops are cereals, cotton, sugar, clover, and vegetables. Wheat production in 1907 is placed at 12,000,000 bushels; corn, 30,000,000 bushels; sugar-cane, 500,000 tons. For 1907-8 the area under cotton is reported at 1,603,271 acres, yielding 716,166,000 pounds and 705,088 bushels of seed; 1908-9, 1,638,040 acres, yielding 678,349,000 pounds and 640,026 bushels of seed; estimate for 1909-10, 1,597,000 acres, yielding 544,450,000 pounds and 569,805 bushels of seed. See IRRIGATION.

COMMERCE. The foreign commerce of Egypt is reported as follows, in Egyptian pounds valued each at \$4.943:

	1906	1907	1908
Imports, mds.....	24,010,795	26,120,783	25,100,397
Exports, mds.....	24,877,280	28,013,185	21,315,673
Imports, specie....	9,077,402	7,768,190	4,205,083
Exports, specie....	2,067,708	4,736,189	4,671,206
Transit	844,702	1,131,801	1,138,567

The leading values, in Egyptian pounds, for imports in 1907 and for exports in 1907 and 1908 are stated as follows:

Merchandise	Imports 1908	Exports 1907	Exports 1908
Cereals (and vegetables)	3,785,196	3,189,492	3,157,588
Wood, coal, etc.	3,358,623	.....	.....
Cotton textiles	3,276,250	.....	.....
Other textiles	3,179,286	.....	.....
Metals and mfg.	2,957,461	3,766	6,494
Spirits, oils, etc.	1,254,656	13,951	12,001
Provis. (and drugs) ..	1,182,679	113,283	107,723
Tobacco	860,542	393,609	364,977
Chemical products..	730,054	28,730	21,800
Skins and leather goods	380,427	148,233	141,598
Raw cotton .....	.....	23,597,851	17,091,612

The transit trade consists mainly of coal imported and reexported at Port Said. The figures for tobacco exports represent reexports in the form of cigarettes. Formerly Egypt not only supplied her own wants in flour and sugar, but exported those products in considerable quantities. Now the export trade depends almost entirely on the quantity, quality, and price of the cotton output. Practically the whole decline in exports in 1908, as compared with 1907, is attributable to the decrease in the value of the cotton shipments. These shipments in 1906 aggregated 6,696,567 cantars (of 99.0492 pounds each); in 1907, 6,859,223 cantars; in 1908, 6,348,493 cantars. In the special trade, imports from and exports to the countries commercially most important have been valued in Egyptian pounds as follows:

Countries	Imports 1908	Exports 1907	Exports 1908
Great Britain	8,264,613	15,225,116	11,147,800
Turkey	3,192,976	337,410	385,695
France	2,915,817	2,040,633	1,681,331
Austria-Hungary ..	1,632,273	1,815,397	1,030,072
Italy	1,187,786	791,044	704,070
Germany	1,118,997	2,252,954	1,848,332
Russia	974,014	1,599,580	1,377,577
Belgium	725,747	90,251	81,820
America (mostly U. S.)	558,703	2,101,785	1,157,006

COMMUNICATIONS. The length of state railways on December 31, 1908, was 1464 miles, exclusive of the Sudan military railway to Khartoum and of about 780 miles of agricultural light railways privately owned. In 1908 the state lines carried 22,851,661 passengers and 3,927,644 tons of freight, the net receipts being £1,353,220. In 1909 it was reported that the Turkish and Egyptian governments had agreed upon the construction of a junction railway between Syria and Egypt. Telegraph lines (1908) aggregated 2907 miles, with 12,480 miles of wire and 321 offices; post-offices and stations numbered 1547. In 1908 2127 steamers, of 3,535,164 tons, entered the port of Alexandria and 2139, of 3,552,483 tons cleared; about 40 per cent. of the tonnage was British. See SUEZ CANAL.

FINANCE. The monetary unit is the Egyptian pound, valued at \$4.943. Revenue and expenditure in Egyptian pounds have been as follows:

	1906	1907	1908
Revenue.....	15,337,294	16,367,818	15,521,775
Expenditure...	13,161,863	14,280,413	14,408,144

For 1909 the estimated revenue was £15,100,000, and the estimated expenditure, £14,850,000. The principal sources of estimated revenue were: Direct taxes, £5,434,000; railways, 3,425,000; customs, 1,880,000; tobacco, 1,575,000; ministry of justice, 1,105,000. The larger items of estimated expenditure were: Administration, £4,690,504; service of the debt, 3,931,071; railways, 2,153,658; army, 1,420,569 (Egyptian army, 734,319; army of occupation, 146,250; pensions, 540,000); Turkish tribute, 665,041; Sudan deficit, 335,000; civil list, 279,378. On December 31, 1907, the total debt amounted to £95,833,280; on December 31, 1908, £95,513,460. On the latter date the general revenue fund stood at £7,374,891.

ARMY. The Egyptian army in which all male inhabitants are liable for service is under the command of a British officer with the title of Sirdar who is also Governor-General of the Sudan. In 1909 the incumbent was Lieutenant-General Sir Reginald Wingate, and with him there were 188 British officers attached to the Egyptian army. The native army in 1909 numbered 17,507 and included infantry, cavalry, artillery, camel corps, and Arab battalions. The British troops under the command of General Sir J. G. Maxwell, in 1909, amounted to 6015 officers and men and included one cavalry regiment, one horse battery, one garrison company, one company Royal Engineers, four infantry battalions, the Third Battalion of Coldstream Guards and various details. The Egyptian artillery has been trained to European standards and is equipped with Krupp field and mountain guns.

GOVERNMENT. The head of the government is the Khedive, Abbas Hilmi since January, 1892. There is a legislative council and a legislative assembly (forty-six of whose members are elective), but they are consultative bodies, the final legislative power being vested in the Khedive and his ministers. No financial measures, however, can be taken without the concurrence of the British Financial Adviser (H. P. Harvey in 1909), while the real ruler of the country is the British Agent, Consul-General, and Minister Plenipotentiary (Sir Eldon Gorst since 1907).

HISTORY. The Egyptian Nationalist Movement continued throughout the year. On February 2 the General Assembly was opened by the Khedive. Its members renewed the demand for the establishment of a Chamber of Deputies. A strike of students occurred on January 24 in the El Azhar University against certain reforms authorized by the government the year before. These reforms were of an elementary character, designed merely to render the institution a university in the Western sense and comprised such points as the requirement to pass examinations, but the Moslem population regarded the institution as a mosque where students met for purposes of education rather than an actual university. The conservative students objected to the changes, and they were joined by others who were discontented with the food and accommodations. The Rector resigned and a fracas having occurred with the authorities a number of the students were arrested. The reform measures, however, were cancelled. The Nationalist Press bitterly attacked the government officials who betrayed great sensitiveness to criticism and lost their courage. In March, the Press Law of 1881 was revived on this account. On March 31 and April 1 there were popular demonstrations against this press law, chiefly by students and by men said to be out of employment. In July a law was framed for placing under police supervision persons known to be in the habit of making, or threatening, attempts on life or property. The views of the Nationalists were expressed at the Young Egypt Congress which met on September 18 at Geneva and comprised 120 Egyptian delegates, two representatives of the British Labor party and two of the Irish party. There were some inflammatory speeches and much sharp criticism of the British occupation. The Egyptian delegates declared that they had been ready for independence twenty-seven years ago and that although it might take them a hundred years to fit themselves for self-government they did not desire or need foreign intervention. They referred to the oppression under which the 12,000,000 people were suffering. The Irish representatives coupled Egypt and Ireland together as "two disinherited nations," each with the same enemy, namely, the "cold and stupid England," etc. The Congress was marked by many speeches against the English policy and their persistency in Egyptian occupation after they had promised to withdraw. On April 1 the Khedive inaugurated the opening of the port and harbor of Port Sudan. An important archaeological discovery was made by Professor Sayce, who was reported, early in February, to have found the site of ancient Meroë. See ARCHÆOLOGY.

EGYPT, EXCAVATIONS IN. See ARCHÆOLOGY.

ELECTORAL REFORM. SHORT BALLOT. "The Short Ballot" is a handy phrase used to denote the proposal to simplify the methods of popular control of government in our cities and States. Its advocates believe that such simplification is necessary before the people can effectively control their government. At present, the voter on election day is confronted with a long ballot, containing many insignificant offices and a greater number all told than he is likely to gather information and develop opinions about. The average voter can possibly speak with intelligence of three or four of the candidates whom he supports at the polls, while he cannot even recall the names of the remainder.

Such blind voting gives power to politicians, makes necessary political machines and creates the jungle of obscure powers and influences described by Judge Lindsey in *The Beast and the Jungle*. (See also *Proceedings of the Cincinnati Meeting of the National Municipal League*.) All this complexity is not only dangerous, but is entirely unnecessary. Minor offices can be made appointive instead of elective. Election schedules can be rearranged, and terms of offices lengthened until the voter on election day is called upon to select no more candidates than actual practice demonstrates he is likely to be able to select intelligently.

The idea of reducing the number of elective offices is not a new one, but an effective movement has been launched (May 1, 1909,) by the Short Ballot Organization, of which Dr. Woodrow Wilson of Princeton is President, Winston Churchill, Horace E. Deming, Clinton Rogers Woodruff, William Allen White, Ben B. Lindsey and William S. U'Ren are Vice-Presidents, and Richard S. Childs, Secretary. It has made a campaign among college professors and secured the use of its pamphlets in the political science classes of thirty-five universities. It is also running a campaign of publicity through newspapers and pamphlets, to explain the idea to the American people.

The Short Ballot principle in essence is, that only those offices should be elective which are important, attract (and deserve) public examination, and that very few offices should be filled by election at one time, so as to permit adequate and unconfused public examination of the candidates. Obedience to these fundamental principles, in the judgment of its supporters, explains the comparative success of democratic government in the cities of Great Britain and other foreign democracies, as well as in Galveston, Des Moines, and other American cities that are governed by "Commissions." Whether this claim is wholly justified, there is no doubt that a conspicuous feature of the movement for the commission form of municipal government is the impetus which it has given to the movement for the Short Ballot, and no small part of its success may be attributed to the fact that it simplifies the issues presented to the elector, in that he is called upon to choose but five officials charged with the duty of carrying on the whole city government. This represents a striking contrast to the burden placed upon the shoulders of the elector in the large majority of American cities, where he is called upon to select "platoons" of administrative, judicial and legislative officers, not to mention school directors and election officers. The consequence is, as has been pointed out at the meetings of the National Municipal League for many years, the elector is by force of circumstances compelled to depend either upon some party for advice and suggestion, or upon some volunteer organization like a municipal voters' league or civic association.

BALLOT REFORM. Ballot reform, that is, the question of the form and make-up of the official ballot containing the names of the candidates, is again assuming an important place in the consideration of a number of States, and notably is New York and Pennsylvania, where an undue advantage is given the straight party voter, and where the complexity and size of the ballot tend not only to confusion, but to the diversion of the will and purposes of the voters. According to William M. Ivins, probably 30 or 40 per cent. of

the most intelligent men in Tammany Hall have come to see that the Massachusetts ballot must be adopted. The leaders of the Republican party in Greater New York are in favor of the Massachusetts system.

NOMINATION REFORM. Nomination reform has been a burning issue in New York and Illinois. Michigan, New Hampshire, Idaho, Nevada and California have within a short time abolished nominating conventions and installed in their place a system of direct nomination. Nineteen States now possess a mandatory system of direct nominations covering all offices except that of delegate to the national nominating conventions. These are California, Idaho, Illinois, Iowa, Kansas, Louisiana, Michigan, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Washington and Wisconsin. In three States, Minnesota, Ohio and Pennsylvania, there is a mandatory system of direct nominations covering all offices excepting positions in the State government and delegates to the national nominating conventions. In four States, Alabama, Florida, Kentucky and Tennessee, there is an optional system of direct nominations covering all offices except delegate to the national nominating conventions. In four States, Indiana, Massachusetts, New Jersey and Tennessee, there is a mandatory system of direct nominations applying to certain localities or offices. In ten or more States there is an optional system of direct nomination covering certain localities or offices: Connecticut, Delaware, Indiana, Maryland, Maine, Massachusetts, New York, California and Rhode Island. In most of the Southern States direct nominations prevail in the majority party.

In New York, Governor Hughes has forced the issue for direct nominations. He is to-day the most prominent and conspicuous representative in office of the growing public protest against what he describes as "the control of the powers of government by selfish interests." Both in his formal messages and in his speeches he has presented the issue clearly and concisely. In one of the former he declared:

"In theory, party candidates are selected by those who have been chosen by the party voters to represent them in conventions. In practice, the delegates to nominating conventions are generally mere pieces on the political chess-board, and most of them might be inanimate so far as their effective participation in the choice of candidates is concerned. Party candidates are in effect generally appointed by those who have not been invested with any such appointing power."

This practice, in his opinion, has had four unfortunate results. It has had a disastrous effect upon party leadership; it tends to discourage party voters from participation in the affairs of the party. Candidates too often regard themselves as primarily accountable, not to their constituents, nor in the broad sense to their party, but to those individual leaders to whom they realize they owe their offices, and upon the continuance of whose favor they feel that their political future depends. The fourth evil, and the most serious, is the consequence to the people at large: "To the extent that party machinery can be dominated by the few, the opportunity for special interests which desire to control the administration of government, to shape the laws, to prevent the passage of laws or to break laws with impunity, is increased. These interests

are ever at work, stealthily and persistently endeavoring to pervert the government to the service of their own ends. All that is worst in our public life finds its readiest means of access to power through the control of the nominating machinery of parties."

The Hinman-Greene Bill embodies Governor Hughes's ideas. Its principal features are: Designation of candidates for nomination by party committees instead of the present convention system. All candidates for party committees to be nominated by petition only, signed by a specific number of enrolled voters. The basis of representation of each committeeman is made proportionate to the vote cast in his district for the candidate of his party for governor at the preceding gubernatorial election. The State committee may be elected from Congressional, Senatorial or Assembly districts, as the parties may for themselves determine. There is to be an official primary ballot, with the names of all the candidates grouped under the title to the office and numbered consecutively, the party candidates receiving a preferential position. All primaries are to be held on the same day. Party platforms are to be framed by a party council to consist of the members of the State committee and the candidates nominated for State offices. Provision is made for severe punishment for attempted corruption at the primaries, and the lavish expenditure of money is restrained by provisions limiting and defining the purposes for which money may be expended.

Governor Hughes has carried the fight directly to the voters, and as a consequence the number of avowed advocates of direct nominations was doubled in the election held on November 2, 1909. As an offset to the Governor's campaign, the legislature appointed an investigating committee, all but one member of which were open and avowed opponents of his plans in this connection. This committee made a tour of the country, investigating direct nomination laws in the several States, and is expected to make a formal report at the next session of the legislature. The one advocate of direct nominations who was appointed to the committee declined to serve, on the ground that the purpose of the committee was unquestionably to discredit the movement and its recommendations were a foregone conclusion. For this reason the work of the committee has not been seriously considered by students of the problem. Far more attention had been given to Governor Hughes's campaign, and to the work of the Direct Primary Association, which has been an effective coadjutor.

DIRECT VOTE. The efforts of the Illinois Legislature to provide nomination reform, for the third time, have been overturned by the Illinois Supreme Court. It must be frankly admitted, as one member of the legislature pointed out, that the recent decision of the Illinois Supreme Court declaring the last primary law unconstitutional will make it difficult to induce the legislature to pass a satisfactory measure. The court has held that a primary is an election. The question therefore arises, whether or not it will be necessary to give to the elector at a primary election the right to cumulate his votes that he now has at a general election. Governor Deneen and his supporters are pledged to carry on the fight, and a special session has been called to deal with the question. There are now 29 States in which there is a direct vote on United States Senators: Alabama, Arkansas, California, Florida, Georgia, Idaho, Iowa,

Kansas, Kentucky, Louisiana, Maryland, Michigan, Mississippi, Missouri, Nebraska, Nevada, New Jersey, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Virginia, Washington, Wisconsin. It must be noted, however, that in the several Southern States the direct nomination of United States Senators is under party rules (particularly Democratic party rules) and only indirectly covered by the State primary law through provisions authorizing such rules. The list above given includes States where the direct nomination is used, however the system may be authorized or provided for.

RECALL. Interest in the recall continued unabated during the past year. In fact, the utilization of this new measure of popular control by the electorate of Los Angeles brings forcibly to mind its rapid development. (See paper presented to the National Municipal League at its Pittsburgh meeting in 1908.)

This year's Nevada Legislature submitted to the next legislature a constitutional amendment establishing in the people a power to recall their public officers. The new Boston charter contains a modified recall; and nearly all the new commission governed cities have it. The recall has been used successfully in Los Angeles, in Junction City, Kansas, and in Estacada, Arizona.

It remained, however, for Los Angeles, which originated the recall as an instrument of popular control in municipal affairs, to afford the most extended application of the provision thus far had. The Los Angeles Municipal League with the cooperation of other civic organizations undertook the recall of Mayor Harper because, as they alleged, he had made unfit appointments to office; had failed to keep his personal promises as well as his election pledges; had used the offices at his disposal to pay political debts; had been a party to marketing the stock of a corporation in which he and members of his police commission were large holders and promoters, among the very people—like the owners and keepers of saloons and houses of ill-fame—whom the police commission is charged with regulating and controlling; because during the two years preceding, gambling had existed unchecked for long periods, and certain saloons and lodging houses had been allowed to do about as they pleased, while others had been held rigidly to the law; because thuggery and house-breaking had been carried on to an intolerable degree; because the city was about to spend \$25,000,000 in the Owens River Aqueduct enterprise and because the make-up of the board which had in charge the expenditure of this money was a matter of vast and imperative importance to the taxpayers. It was only natural that there was objection to this course of procedure, the allegations being made that the proper course for the League and its allies to have pursued was through the courts. Mayor Harper resigned before the vote was taken. At an election held to fill the vacancy the Municipal League's candidate was elected by a substantial majority and the forces for decent and efficient government won a two-fold victory: first, in securing the elimination of an admittedly bad mayor and, second, the substitution in his place of a competent successor.

The Boston recall plan is an interesting modification of the Los Angeles idea. The mayor is elected for four years and at the general election in the second year of his administration the

question shall be submitted to the voters as to whether he shall continue for the full term, or whether he shall be reelected at the following January election. If the vote is an affirmative one, there must be an election for mayor in the following January, and the name of the incumbent goes on the ballot without further formality. Other candidates may be nominated for the office at the same time. The mayor, if he wishes, may announce in the October of the second year of his administration his desire to drop out of the office, in which event there will be an election for mayor in the following January, but he may change his mind between October and January and become a candidate at the January election if he wishes.

CHARTER REFORM. Berkeley (California) has a new charter which contains provisions closely analogous to the two election systems in vogue in France. All nominations to elective offices are made by petition only, by filing with the City Clerk 25 certificates of nomination each signed by one voter, there being no limit to the number of candidates for any given office. If at the regular municipal election any office is not filled, then a second election must be held three weeks later. At the first election the candidate receiving the highest number of votes for the several offices in question shall be deemed elected, provided that number is "greater than one-half the number of ballots cast at such election." In case of any non-election, then, as far as unfilled offices are concerned, the regular election becomes a primary and the two candidates who received the highest number of votes (or three in case of a tie) become the nominees to be voted for at the second election. At the first election (May 1, 1909) under the new charter there were four candidates for mayor, four for auditor, twenty-nine for councilmen or commissioners, and twenty-one for school directors—there being four councilmen and four school directors to be elected. The large number of candidates produced some confusion in the minds of voters at first; but it was soon seen that most of them were negligible and could be easily eliminated. There were ten candidates for councilmen and ten for school directors that were to be taken seriously. Very satisfactory candidates had been brought out by the non-partisan nomination. The first election was very interesting, about 70 per cent. of the qualified voters participating. A strong fight was put up by the local political machine to retain control, and a popular political leader was nominated for mayor—a strong vote getter; but the "Good Government" people were well organized and did not allow themselves to be deluded. At the last moment a partisan call to stand by the party as against any non-partisan ticket, a cry that had always worked successfully under the old methods of nomination, was made, but the result of the election was a decided victory for the "Good Government" forces, the candidate for mayor receiving a clear majority over all other candidates, as did the candidate for auditor. Among the highest eight candidates for councilmen, the first four were "Good Government" candidates; and it is doubtful whether more than one of the remaining three could be called political candidates in the ordinary acceptance of the term. At the second election the "Good Government" forces were again completely successful.

COMMISSION. Colorado Springs, which adopted the main ideas of the commission form of govern-

ment, followed Berkeley's lead in substituting second elections for direct primaries. The councilmen were elected at the first election; but it required a second election to determine the choice for mayor. In place of the Berkeley-Colorado Springs plan, the new Grand Junction charter provides for a complete unification of primaries and elections at each election and for the choice of candidates in proportion to the number of their respective supporters. In the words of the official summary: "The preferential system of voting has been established in lieu of direct primaries or of second elections, thus securing a unique and accurate expression of the public will at the polls with the minimum of cost and effort." This innovation is a form of proportional representation now widely used in Australia. So far as we are informed, it has never been adopted in the United States except possibly in a modified way in the State of Idaho.

The official ballot used at the election on November 2, 1909, contained these instructions: "To vote for any person, make a cross (x) in ink in the square in the appropriate column according to your choice, at the right of the name voted for. Vote your first choice in the first column; your second choice in the second column; vote any other choice in the third column; vote only one first and only one second choice. Do not vote more than one choice for one person, as only one choice will count for any candidate by this ballot. Omit voting for one name for each office, if more than one candidate therefor." The results seem to have given satisfaction, the successful candidates representing the choice of the majority.

INITIATIVE AND REFERENDUM. Portland, Oregon, for the second time, gave the initiative and the referendum a severe trial. In the opinion of thoughtful observers, altogether too many questions were submitted to the electors at the June election, the ballot containing the questions being 16 inches by 22 inches. It had on it the names of candidates for 6 offices, and 35 separate questions. The election seems to have been most intelligently conducted. There was a great amount of advance information and advice sent out in the way of circulars, pamphlets and a very carefully prepared report from the Taxpayers' League. The election was quietly conducted without the slightest suspicion of any improper voting, the progressives identified with the Taxpayers' League expressing themselves as being on the whole exceedingly well satisfied with the result. On one or two minor points its recommendations were overruled; but only such issues as were considered proper were passed. The vote for mayor was 18,000 and on the referendum it averaged 15,000—a surprisingly large proportion.

Arkansas's Legislature submitted to the people this year a constitutional amendment for the establishment of the referendum and initiative, the system proposed being the one now in use in Oregon. Nevada's Legislature took the first steps toward amending its constitution along similar lines. In municipal affairs wherever the Des Moines plan of government has been adopted, it has been in conjunction with provisions providing for the initiative, referendum and recall. Kansas has established the initiative and referendum in all the cities of the State. Following are the States where the initiative and referendum are used in some of the cities or in all of them: California, Colorado, Delaware,

Idaho, Iowa, Kansas, Maine, Massachusetts, Mississippi, Missouri, Minnesota, Montana, Nebraska, North Dakota, Oklahoma, Oregon, South Dakota, Tennessee, Texas, Washington; in all 20 States. The States where the initiative and referendum are in full operation for statute and municipal law are: Maine, Missouri, Montana, Oklahoma, Oregon and South Dakota. In all of the States so far mentioned, except Maine and Montana, the initiative applies to constitutional changes.

PARTY DESIGNATIONS. In regard to the elimination of national party designations from municipal ballots and the establishment of non-partisan elections, Robert Treat Paine, Jr., in a paper read before the National Municipal League at its meeting in Cincinnati in November, 1909, declared that that reform is making rapid progress. Four States, by general law, permit its establishment by cities. In ten other States cities are now operating under a non-partisan plan. In as many more States cities are seeking charter amendments for similar permission. The fact that some cities which have lately adopted it, like San Diego and Los Angeles, discussed and adopted important charter amendments as recently as 1905 and yet at that time made no provision for non-partisan elections, shows what great headway this idea has lately made and that it is now no longer academic, but is one that the people are ready to enforce as a governing principle in their civic life. In the effort to eliminate national party organizations from city elections, there has been no discrimination in favor of municipal parties. All political designations have generally been debarred. The Haverhill plan expressly forbids anything on the ballot indicative of the candidate's views or opinions. Kansas, in its short-lived law of 1907, did permit the use of three words for the expression of political principles. As there are important and even fundamental local questions about which citizens may properly and logically disagree, and as it is needful that the fullest publicity should be given to the position of candidates upon such questions, it may be well that municipal parties will be organized and given due recognition in the election laws. In Mr. Paine's judgment at the present time, however, in the present stage of the contest against politicians, it is probably wise to simplify the issue, as is now being done where this issue is raised, and leave to time and evolution any necessary modification of the general principle of the elimination of partisanship from cities.

In other directions there have been numerous interesting developments. Pennsylvania has adopted a series of constitutional amendments providing for annual elections and the complete separation of local from State and National elections. Corrupt practices legislation is being proposed in many directions. Maryland defeated amendments intended to disfranchise the negro. Pennsylvania and Illinois are codifying their elections laws. In the latter State the proposition has been seriously advanced that the election officers should be subjected to a written examination.

ELECTRICAL INDUSTRIES, GROWTH OF IN 1909. The year 1909 was marked by rapid recuperation in the electrical industries. The high record of 1906 was not attained, but the records of the two preceding years were greatly surpassed. A leading engineering journal offers the following estimates of sales and earnings:

	1908	1909
Electrical apparatus.....	\$ 250,000,000	\$ 275,000,000
Electric railways.....	350,000,000	475,000,000
Central stations.....	225,000,000	250,000,000
Telephony.....	200,000,000	250,000,000
Telegraphy.....	50,000,000	60,000,000
Isolated plant supplies..	75,000,000	75,000,000
Miscellaneous.....	40,000,000	50,000,000
Total.....	\$1,190,000,000	\$1,435,000,000

There has been a sustained and healthy growth among the central stations. Exceptional activity was shown in the realm of the industrial applications of electric motors. A great gain was made in the electric lamp industry, due to the widespread use of the expensive metal filament lamps. The manufacture of telephone equipment remained very much below the mark set by 1906.

ELECTRIC LIGHTING. The epoch-making developments in electric lighting during the years 1907 and 1908, chief among which were the widespread introduction of metallic filament incandescent lamps, of flame arcs and of metallic-oxide arcs, continued without abatement through 1909. In the incandescent lamp field there has been a conservative tendency in the matter of efficiency and efforts have been concentrated upon the improvement in the quality, the uniformity and life of the product. The practicability of the tungsten filament has been demonstrated beyond all doubt and it is successfully applied to conditions which were at first regarded as far too severe to permit its use. It is the growing opinion of scientists that its superior efficiency is due in no small measure to the property of selective radiation which causes a greater per cent. of the energy supplied to it to be radiated as light, than would be the case with other materials. Much research has been devoted to the problem of discovering still more effective means of employing this phenomenon.

The Nernst lamp, whose glowers consist of a mixture of the rare earth oxides, has been much improved during the year. By the use of a heating device which becomes immediately incandescent upon closing the switch, the instantaneous-lighting property has been supplied.

Much attention has been given to the problem of producing electric illuminants which closely reproduce the quality and color of diffused daylight for use in the lighting of stores and color printing establishments. This has led to the introduction of a new type of arc lamp known as the intensified arc. Its distinctive feature is the use of two long, thin carbon rods which incline slightly toward the top of a single upright lower electrode. A double arc is thus formed, the thin upper rods serving as positives. Because of the high current density, their tips are raised to a temperature much higher than that ordinarily reached in the arc, yielding a surpassingly white light of excellent efficiency.

New standards of performance for flame arcs were set by the employment of the regenerative principle. The arc is formed between vertical electrodes in an enclosed glass cylinder. The vapor produced at the arc rises to the top of this cylinder, and is led off through ducts by which it is again readmitted to the arc cylinder at the base. By reason of this circulation the arc vapor is used again and again, so that a portion of its heat is conserved, and the rate

of burning away of the electrodes to supply the arc is greatly reduced. An efficiency of four lower hemispherical candle-power per watt is secured and a life per trim of 70 hours.

For street lighting, very extended use has been made of the magnetite arc first introduced in 1906. This arc is of the luminous type, its light being derived from the white arc flame of titanium oxide. Its efficiency is such as to permit a greatly improved standard of illumination to be maintained at a reduced cost of operation. Flame arcs with vertical electrodes have been applied to a considerable extent to street lighting. Such arcs are usually mounted on extra high poles so as to cast a great flood of light over a wide area. Constant-current tungsten lamps operated on series circuits have had a very wide and successful use in heavily shaded residence streets to which arcs are not well adapted. The general improvement in the standards of street lighting was one of the most noteworthy achievements of the year.

An event of most fundamental importance to the lighting industry was the unification of the units of light maintained in America, Great Britain and France, and the establishment of a simple ratio between the new international unit and that maintained in Germany. The following relations have now gone into effect:

1 International Candle = 0.10 Vernon-Harcourt Unit.

1 International Candle = 1.00 Bougie Decimale.

1 International Candle = 1.00 American Candle.

1 International Candle = 1.11 Hefner Unit.

1 International Candle = 0.104 Carcel Unit.

The prototype of the new unit is to be maintained in America by the United States Bureau of Standards.

ELECTRIC POWER, TRANSMISSION OF. See TRANSMISSION OF ELECTRIC POWER.

ELECTRIC RAILROADS. The progress of electric railroading during 1909 was of a conservative character. It consisted largely in the continuation of projects begun in the two preceding years, and in the higher refinement of existing equipment. In contrast with the years just preceding, no new electrification projects of magnitude have been undertaken in America, though there is much activity in European systems. Electric locomotives have been put in operation on the Dessau-Betterfeld section of the Prussian state railroads, and extensions are in progress. The Austrian government is planning the electrification of various sections of its lines operating with heavy grades, amounting to about 600 miles in the aggregate. The Italian government has begun work on 200 miles of electrification of state railroads which will occupy three years. The Western Railroad system in France has been taken over by the state, and electricity is to be substituted for steam in suburban sections having very heavy traffic.

The most noteworthy achievements for the year in heavy traction in America have been the completion of the Pennsylvania tunnel system, extending from Harrison, N. J., under the Hudson River, the Island of Manhattan and the East River to Long Island, a distance of 5.07 miles, with a surface extension on Long Island of 9.83 miles; the completion of the electrification of 40 miles of track of the Long Island

system; the beginning of operation on the Cascade tunnel section of the Great Northern system; and the approach to completion of the Detroit River tunnel of the Michigan Central Railroad. The New Haven system has projected the extension of its electric system from Stamford to New Haven, and has introduced high speed freight service operated by electric locomotives on the electrified division.

While the financial situation among the railroads has shown a healthy recuperation in 1909, the record of construction for the year shows a new mileage of but 887.16, as compared with 1258.51 for 1908, and a still larger figure for 1907. This reduction is ascribed to the after-effects of the late financial depression.

No new types of equipment have been introduced, but the performance of the recent types has been much improved. Some advance has been made in the standardization of electric equipment for various conditions. The installation of 600-volt, direct-current equipment in the Pennsylvania tunnel system beneath New York, and on its connecting lines in Long Island, and the selection of this system for the Michigan Central tunnel at Detroit, tend to emphasize its superiority for the congested traffic conditions in city terminals. The high degree of perfection attained by the single-phase alternating-current equipment of the New Haven system points to the extensive use of this system on railway trunk lines. The operation of the three-phase alternating-current installation on the Cascade tunnel division of the Great Northern Railway has been successfully begun and gives indications that similar equipment may afford great advantages where track conditions are simple and heavy grades prevail.

The field of interurban traction is divided between the single-phase and the 100-volt direct-current systems. The progress of the latter in 1909 has been noteworthy. Eleven such roads are now in operation, comprising 380 miles of track, and an aggregate motor capacity of 60,000 horse-power. The success of this system is due to the use of auxiliary commutating poles in the motors, by which sparking troubles and excessive brush wear have been fully overcome. The practicability of still higher voltage in direct-current systems seems assured, and its adoption is confidently expected.

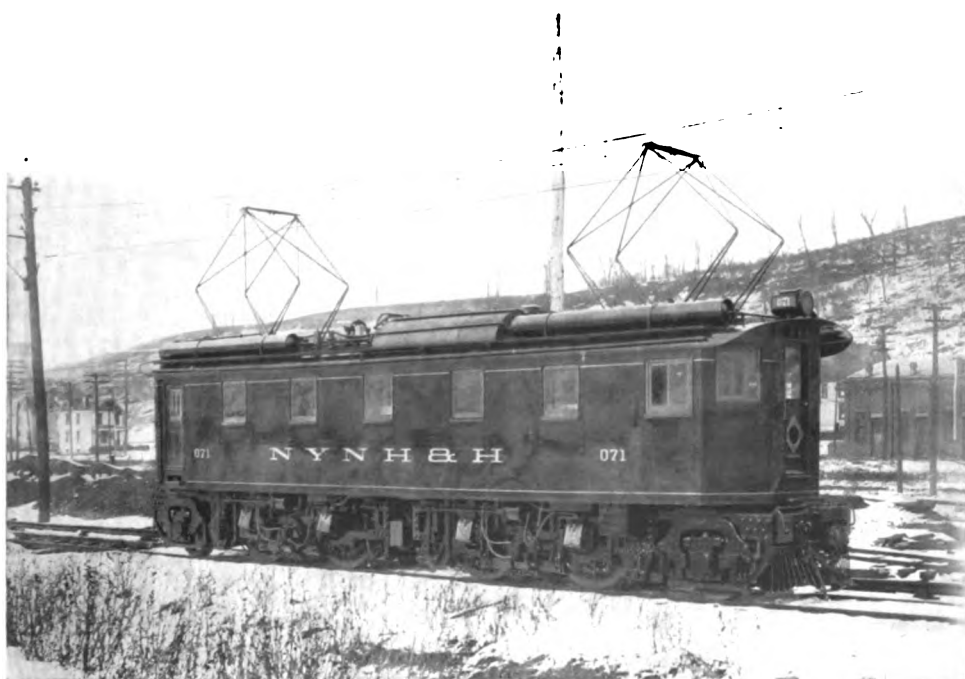
In the design of heavy electric locomotives there is a marked tendency away from geared motors toward side rod connections similar to those employed in steam locomotives. The advantages gained are threefold, viz., greater capacity because of the greater space available for the motors, the spring support of the motors on the side frame, and the higher centre of gravity. The new locomotives of the Pennsylvania system for use in its New York tunnel typify the possibilities of such construction. The weight is 332,100 pounds, of which 208,000 pounds are carried by the drivers. The motors develop 4000 horse-power and are capable of maintaining heavy service at a speed of 72 miles per hour. Each locomotive has a drawing power equivalent to that of two heavy steam passenger locomotives. Much success has attended the use of gasoline-electric motor cars on branch roads which are operated at a loss by steam power, and on which the light traffic does not warrant the heavy expense of electrification.

Managers of city systems complain of the in-



PENNSYLVANIA TERMINAL AND TUNNEL LOCOMOTIVE

Direct Connected Side Rod Type for 650 Volts Direct Current. Equipped with two Westinghouse Railway Motors driving 68-inch wheels. Weight of locomotive 166 tons. Horse power, one hour rating, 2000.



NEW YORK, NEW HAVEN, AND HARTFORD FREIGHT LOCOMOTIVE

Alternating and Direct Current, Twin Gear, Spring Drive Electric Locomotive. Equipped with four Westinghouse Railway Motors driving 62-inch wheels. Gears 34 : 79. Uses 25 Cycles Single Phase Alternating Current at 11,000 Volts and Direct Current at 650 Volts. Weight of locomotive 150 tons. Horse power, one hour rating, 1585.

creasing difficulty of maintaining adequate and profitable service on the 5-cent basis of fare with free transfers. The rejection of the political programme of municipal ownership and reduced fare in the Cleveland election is considered by many as an evidence of change of the public attitude toward this problem.

ELEMENTS, CHEMICAL. See **CHEMISTRY.**

ELGAR, FRANCIS. An English naval architect, died January 17, 1909. He was born in 1845, and was educated at the Royal School of Naval Architecture and Marine Engineering. From 1867 to 1871 he was in the Admiralty service, and from 1879 to 1881 was adviser on naval construction to the Japanese government. In 1883 he became professor of naval architecture and marine engineering at the University of Glasgow, serving until 1886. He was director of the dockyards of the Admiralty from 1886 to 1892. Following this he was employed as naval architect by private companies. He wrote *Ships of the Navy* (1873), and many professional papers.

ELIOT, CHARLES WILLIAM. An American educator, president emeritus of Harvard University, and until May 19, 1909, president. He was born in Boston in 1834, and prepared for college at the Boston Latin School, graduating from Harvard College in 1853. From 1854 to 1858 he was tutor in mathematics at Harvard, at the same time carrying on the study of chemistry. He was assistant professor of mathematics and chemistry at the Lawrence Scientific School of the University from 1858 to 1863, and from 1863 to 1865 he continued his study of chemistry in Europe, meanwhile investigating educational systems of that country. He became in 1865 professor of analytical chemistry at the Massachusetts Institute of Technology, and held that position until 1869, when he became president of Harvard College. He began at once thoroughly to reorganize the College, introducing new methods of teaching, and securing, as occasion offered, the best teachers to be had in the country. He was one of the earliest and strongest advocates of the elective system, which he introduced at Harvard, and which greatly improved the University's educational efficiency. President Eliot had remarkable administrative ability, and he is generally considered as the foremost American educator of his time. He resigned as president of the University on October 10, 1908, making May 19, 1909, the date on which the resignation should become effective. The resignation was accepted with great reluctance by the trustees of the University.

One of the first of President Taft's acts after the beginning of his administration was to offer to President Eliot the Ambassadorship to Great Britain. The offer was everywhere greeted with approval, but President Eliot, on account of his age and his disinclination to engage in any new work, declined the offer. In March, 1909, he made an extended tour in the South and spoke at many Southern institutions. During this tour he stated that he intended to make a selection of books sufficient to fill a shelf five feet long, the reading of which for ten minutes a day would insure a liberal education. This proposal aroused a great deal of comment, which was not diminished when a partial list of the books was published. It contained titles of several books which are little read, and, for

the most part, forgotten. Dr. Eliot is the editor of this series which is being published by a firm in New York City. Scarcely less comment arose over President Eliot's promulgation, in an address before the Harvard Summer School in July, of what he described as a new religion. In this religion he conceives there will be no authority, either spiritual or temporal, no tribal faith, no sudden conversion, no sacrifice, and no substitute for sacrifice, no belief in malignant powers, no supernatural element, no sacraments except natural hallowed customs, no imagination of the "justice" of God, and no condemnation for the mass of mankind. There will be, on the contrary, a new thought of God as one immanent in the world. The new religion will take account of all righteous persons, and it will reverence the teachers of liberty and righteousness. Prevention will be its watchword, and the skillful surgeon will be one of its ministers. Based on the two great commandments of loving God and one's neighbor, the new religion will teach that he is best who loves best and serves best, and the greatest service will be to increase the stock of good will.

At the commencement exercises of Harvard University in June, President Eliot was made president emeritus. He has written several books, among them *More Money for the Public Schools* (1903); *The Happy Life* (new ed. 1905); and *Four American Leaders* (1906); *Educational Form*; *American Universities* (1908).

ELLIOT, SAMUEL RICHARD. An American physician and litterateur, died October 26, 1909. He was born in New York City in 1836, and was educated in Columbia College, and in New York Medical College, graduating from the latter institution at the age of nineteen. He studied at the University of Heidelberg, and afterwards went to Paris, where he passed an examination for entrance to the Conservatory of Music. He studied both music and medicine and won high reputation as a musician. After spending some time in Italy and Austria, he returned to the United States and enlisted for the Civil War in the 79th Highlanders, organized by his father. He served as assistant surgeon and surgeon throughout the war, being wounded at the battle of Antietam. After the close of the war he began the regular practice of his profession, and also did a large amount of literary and dramatic work. He became intimate with most of the literary celebrities in New York at the time. He became eminent as a specialist in affections of the eye, ear and throat. Dr. Elliot was one of the first to use music therapeutically. He wrote many essays and sketches which were published in the *Atlantic Monthly*, *Harper's Weekly*, and in other periodicals. He wrote also a number of poems, which were printed in the *Churchman* and in the *Congregationalist*.

ELWIN, EDMUND HENRY. An English bishop of the Established Church, died November 11, 1909. He was born in 1871, and was educated at Dover College and Merton College, Oxford. He was ordained priest in 1895. He engaged in mission work under the Church Missionary Society, and in 1896 was appointed by this society vice-president of its college at Fourah Bay, Sierra Leone. Two years later he became principal of the college, and served

as secretary of the Sierra Leone Mission. In 1901 he was nominated as Bishop of Sierra Leone, and was consecrated in 1902.

EMERSON, ELLEN. Eldest daughter of Ralph Waldo Emerson, died at Concord, Mass., January 16, 1909. She was born in 1839. Miss Emerson acted for many years as housekeeper for her father, and she had a wide acquaintance among the celebrities of the United States and foreign countries. She was of striking personality, and greatly resembled her father in appearance and manner.

EMERY, HENRY CROSBY. American political economist, appointed by President Taft in 1909 the head of the tariff commission. He was born in Ellsworth, Maine, in 1872, and graduated from Bowdoin College in 1892. He studied economics at Harvard and Columbia Universities, and at the University of Berlin, until 1897. In 1894 he was appointed instructor in political economy at Bowdoin College, and from 1897 to 1900 he was full professor of this branch. He was chosen professor of political economy at Yale University in 1900 and still occupies that position. He is the author of *Speculation on the Stock and Produce Exchanges of the United States* (1896), and contributed to the *Cambridge History of the World*. He has also written many articles in economic journals.

EMIGRATION. See IMMIGRATION AND EMIGRATION.

EMMANUEL MOVEMENT. See PSYCHOTHERAPY.

EMPIRE FAIR. See CANADA.

EMPLOYERS' LIABILITY. The last few years have developed a marked tendency among more enlightened opinion away from employers' liability as compared with systematic workmen's compensation in cases of industrial accident. In the United States this change has been due both to fairly accurate statistics showing the frightful loss of life in certain industries, and to conclusive evidence showing the inadequacy of the present haphazard system of forced recovery from employers for injury. It was no doubt a great step in advance when the doctrine of assumption of risk by the employee was modified and the employer made responsible for injuries due to his negligence or fault, or that of his principals. But this system makes no adequate provision for the injured workman's family, or others dependent upon him, who are often the chief victims. The various phases of this entire subject were considered at a conference at Atlantic City, July 29-30, called by the Minnesota Employers' Compensation Commission, and participated in by the Wisconsin Joint Committee on Industrial Insurance, and the New York State Commission on Employers' Liability and Unemployment, together with other public officials and leading actuaries. Those assembled were unanimous in condemning as highly unsatisfactory existing liability laws, in favoring the transfer of the basis of recovery from employers' fault to the industry, and in approving the system whereby the injured employee receives compensation on a definite scale regardless of the employer's negligence. The question of the constitutionality of a system of workmen's insurance in the United States was thoroughly, but inconclusively, analyzed. It was held by many that

ground for such a law existed in the exercise of the police power. The conference brought out the probable reluctance of employees to surrender their right to sue for damages, and the like reluctance of employers to favor any adequate compensation system that did not relieve them of liability. On this point it was stated that too negligent employers might be made criminally responsible to society, and would be penalized by insurance companies, while employees would surrender their right to sue if compensations were adequate.

After a review of the systems now in use in European countries, the following features of a plan adaptable to conditions in this country were brought out: Weekly or monthly stipends during the entire period of disability instead of a lump sum payment; great flexibility in the methods by which employers may meet their responsibility; but thorough provision that there should be no failure to meet this liability through the insolvency of either the employer or his insurance company; and measures to reduce the number of accidents. The conference authorized a standing committee, and a general conference in 1910, to which the Governors of the States will be asked to send delegates.

Mr. Joseph Cotton, Jr., counsel for the New York State Commission, already mentioned, investigated about 20,000 cases of industrial accident resulting in about 2000 deaths and 4000 permanent injuries. He found that in only about 25 per cent. of these cases did the employees recover anything at all; that where employers resorted to employers' liability insurance companies for protection, recovery by employees was secured in only about 8 per cent. of the cases; and that of the premiums which employers pay to such companies only 30 to 40 per cent. is paid out to injured employees, the remaining 60 to 70 per cent. being absorbed by the expenses of the business, about 15 per cent. being used in fighting claims. When employees' attorneys' fees and other expenses are taken into account, it seems probable that not 25 per cent. of the insurance premiums actually reach injured workmen. Other lines of inquiry taken up by this Commission were the economic effects of industrial accidents, the employers' liability laws in the various States, foreign systems of workmen's compensation for loss due to industrial accidents, causes of such accidents, causes of unemployment, the lack of labor in farming sections, and better means of distributing labor in the State. The Wisconsin and Minnesota Commissions were likewise making exhaustive inquiries and preparing bills dealing with employers' liability and systematic workmen's compensation.

Largely as a result of the disaster in the coal mines at Cherry, Ill., in which about 350 miners lost their lives, Governor Deneen, in his message to the legislature in special session in December, urged the appointment of a commission similar to those of Minnesota, Wisconsin and New York to inquire into employers' liability and workmen's compensation for industrial injuries. A bill to this end was at once presented, requiring a report by February, 1911. This plan contemplates also the revision of the mining laws, with a view to prevention of such catastrophes in the future.

Convincing evidence of the development of opinion with reference to the chaotic legal

status of employers' liability in this country was contained in the proceedings of the National Civic Federation, November 22-23, in New York. Although the National Association of Manufacturers had only a few days previously declared the present laws, "built up through generations," to be satisfactory, the addresses before the Civic Federation severely arraigned them. Senator Root characterized the present law as foolish, wasteful, ineffective and barbarous. Mr. A. H. Gill, a Labor member of the House of Commons, reported favorably on the English experience under the compensation act of 1906. He emphasized the fact that this law had greatly stimulated the zeal of employers in fencing machinery, and in other ways taking every precaution to prevent accidents. German experience was outlined by Major Piorkowski, of the Krupp works, and French and Swiss laws were detailed by others. Though some trade unions in this country have opposed the idea of workmen's compensation on the ground that it involved a surrender of right to sue, Mr. John Mitchell declared strongly in favor of this idea. He stated, however, that protection is more important than compensation, and that, therefore, progress would result only from some plan that is more expensive than the present condition. Admiral J. B. Murdock, commandant of the Brooklyn Navy Yard, in a very favorable statement of experience with the national compensation act of 1898, declared that it compelled safety, and led to better sanitation. He recommended that the law require the physical examination of all employees. See LABOR LEGISLATION.

ENGINEERING. See articles on various subjects, as AQUEDUCTS, COAL, DYNAMO-ELECTRIC MACHINERY, ELECTRICAL INDUSTRIES, IRON AND STEEL, SANITATION, SHIPBUILDING, STEAM TURBINES, WATER WORKS, and other articles on engineering topics.

ENGLAND, CHURCH OF. A religious denomination which is the "established Church of England," and the dominant religious body of that country. There are at the head of the Church in England and Wales 37 bishops, of whom two, Canterbury and York, are archbishops. The bishops superintend the work in each diocese, and are aided by the suffragan or assistant bishops, of whom in 1909 there were 32. There are two convocations or provincial synods of the clergy of the Church of England for the two provinces of Canterbury and York. The archbishop of Canterbury is the highest dignitary of the Church and has the title of Primate of all England. The bishops of the Church are entitled to seats in the House of Lords. No regular statistics of the Church are gathered, but it is estimated that there are about 30,000 clergy in England and Wales, of whom 14,000 are beneficed, and about 7000 are assistant curates. The number of communicants is estimated at approximately 2,500,000. The church sittings number about 6,000,000.

The most important change in the English episcopate in the year 1908-9, was the elevation of the suffragan bishop of Stepney, the Right Rev. Cosmo Gordon Lang, D. D., to the archbishopric of York, in succession to the Most Rev. W. D. McLagan, who resigned. It is the first case in the history of the Church where a bishop suffragan has been elevated to the archbishopric. Several important problems

have been for some time before the Anglican Church, and no great progress was made upon them during the year. The revision of the Prayer Book still remains in abeyance. At the July session of the Convocation, the most important action was the recommendation of the Lower House, with respect to the use of the Athanasian creed, to the effect that the creed be retained as heretofore, without the existing rubric, and that provision be made for its liturgical use without the warning clauses. The status of persons married under the law passed in 1908, sanctioning marriage with the deceased wife's sister, was a cause for perplexity during the year. A case was carried up to the highest law courts from the diocese of Norwich, in which the priest refused to communicate persons thus married, and the courts decided against the priest. Subsequently, in the Representative Church Council, a declaration was adopted by an overwhelming majority to the effect that, "seeing that all marriages within the prohibited degrees of affinity (whether allowed by the law of the land or not) are wrong, as being contrary to the moral rule of the Church of England, and the principles implied in Holy Scripture as interpreted by it, the use of the Prayer Book's service for the solemnization of holy matrimony in respect to any such marriages is most strongly to be reprobated."

The most picturesque feature of the year in the history of the Church was the great historical pageant on the grounds at Fulham Palace, which took place in June and which illustrated the history of the Church from the earliest times on a magnificent scale. There were nearly 4000 performers, and the spectators reached many thousands more. Of similar interest was the observance of the thousandth anniversary of Wells Cathedral, which was celebrated in June. In the same month the English Church Union observed its fiftieth anniversary.

The Church's Congress of 1909 was held at Swansea, and it was a notable success in numbers and public interest. The subject of Socialism was discussed in its various phases, both by those who approved and by those who opposed its tenets. The subject of Christian Science was also under discussion.

ENTERIC FEVER. See TYPHOID FEVER.

ENTOMOLOGY. As in 1907 and 1908, the most important problems in economic entomology in the United States deal with the gipsy and brown-tail moth in New England, and the cotton-boll weevil in the South. Of lesser distribution in the South, but nevertheless a serious problem, is the Argentine ant, a pest now found mainly in Louisiana, but likely to spread through all of the Gulf States. Newell reported that the animals may be killed by winter trapping. Large open boxes filled with cotton seed, straw, and other waste, were placed in yards, where the contents became moist and began to ferment. The warmth resulting from the fermentation proved attractive to the ants which collected in the boxes in large numbers, and were killed with carbon bisulphide. In summer, the method of trapping was less effective, because the colonies are small and widely scattered and are difficult to reach. It was found that cotton cloth, soaked in corrosive sublimate solution and dried, would not

be crossed by the ants, and that strips of tape, treated in this way and tacked around the legs of tables or edges of shelves, would form efficient repellents. Similar results were reported from South Africa, where this ant also occurs.

No remedy for the cotton-boll weevil was found during the year. W. D. Hunter reported in January that a dry climate is especially unfavorable to its development, so that it does little damage in western Texas, but a correspondingly greater amount in Louisiana and Mississippi. Here, however, a number of parasitic and predatory insects have changed from their original hosts to the weevil, so that the boll weevil "complex" now comprises 49 weevils which feed upon 95 plants, and 97 insect enemies of these weevils. The best hope seems to be in the use of insect enemies of the boll weevil, and a number of forms have been introduced which have adapted themselves to the weevil in Texas.

The fourth annual report of the Superintendent for the Suppression of the Gipsy and Brown-tailed Moth shows that there was expended a sum of over \$500,000 on an area of a little over 5000 square miles. In addition to this, the Federal government kept all trees and bushes free from the pest along 230 miles of roads. Parasites imported from Japan by Kincaid, and others obtained in Europe by Howard, have been liberated with satisfactory results, though it must be admitted that, in spite of all this work, the gipsy moth somewhat extended its range during the year, while the brown-tail became established throughout the eastern part of Massachusetts. A small colony of the brown-tail moth was reported from Rye, Conn., near the southwestern border of the State. Energetic measures for its suppression were taken, and it was thought that the entire colony was destroyed. Howard spent a portion of the year in Europe, in the interests of the Bureau of Entomology, and reports that while a very efficient inspection service is maintained in Holland, so that there is no danger that fruit trees imported from there will be infected, no such inspection exists in either France or England.

S. J. Hunter has published, as a Bulletin of the University of Kansas, a report on the "green bug," *Toxoptera graminum*, an aphid parasite of wheat. The report deals with the life, history and mode of distribution of the insect, and the best means of combating it. Its most important enemies are lady-bird beetles and lace-wing flies, whose larvæ attack the aphids, and certain other insects whose larvæ develop as internal parasites in the body of the aphid. Observations showed, also, that the aphids are able to tide over the interval between the reaping of one crop and the sowing of the next, by living on "volunteer" oats. Hence it follows that careful plowing under of these volunteer oats would destroy the food plant of the animal.

C. Gordon Hewitt has published Part 3 of his studies on the Bionomics of the House-fly in the *Quarterly Journal of Microscopical Science* for December. The paper gives systematic descriptions of flies commonly or often associated with the house-fly (*Musca domestica*), as well as with some points in the physiology of the latter. They develop more rapidly in horse manure than in other materials, though the reason for this difference is not known.

While more active at a higher than at a lower temperature, they are not killed by exposure for 12 hours to a temperature of -3° centigrade.

This and other papers published during the year call renewed attention to the part which the common house-fly ("typhoid-fly" is the name suggested by Howard) plays in the transmission of disease. A large amount of evidence has been accumulated to show that typhoid fever, cholera and tuberculosis are certainly carried by these insects. This is a mechanical mode of transmission, the germs being picked up by the fly in walking over infected materials, as in cesspools, latrines, etc., and subsequently deposited on human food when the insect lights upon it. In other cases the germs may apparently be taken into the alimentary canal of the fly with its food, pass uninjured through the canal, and be deposited with its excrement upon food products. The obvious remedy for all this is to prevent flies from breeding, by removing or screening manure heaps, cesspools, etc., and, by the use of screens, keeping them from lighting on food intended for human consumption. See INSECTS AND THE PROPAGATION OF DISEASES.

Recent experiments on the tsetse-fly indicate that if it be allowed to bite an infected animal, it will not transmit the disease at once, but only after a considerable interval of time, viz., 18 to 25 days. This would indicate that the fly is not a mere mechanical transmitter of the disease, but that a regular developmental cycle goes on in the body of the insect. In view of the importance which accurate information concerning all phases of the life cycle of this and other insects has upon the study of tropical diseases of man and other animals, and the relation between insects and economic plants, a special committee, to be known as the African Entomological Research Committee, was formed in England, with Lord Cromer as chairman. The committee hoped to coöperate with other similar organizations in securing a large amount of information on all phases of these questions, so far as they relate to the continent of Africa. For that purpose, they planned to send a trained entomologist to the East coast, and one to the West coast, to instruct official and other residents in the methods of collecting and observing noxious insects, and to stimulate, so far as possible, public interest in these subjects.

To avoid the confusion incident to the use of the same common name to apply to more than one species of the same genus, the American Association of Economic Entomologists have adopted a list of approved common names, giving with each the scientific name of the insect to which the common name may properly be given. The names approved at the 1908 meeting of the Association, and added to this list, appeared in the *Journal of Economic Entomology* for February, 1909.

EPILEPSY. During 1909 separate provision for epileptics was made in seven States. In other States there were private or semi-private charities, so that in all about 5000 epileptics are cared for in institutions especially designed for them. Many others are treated in homes for the insane or feeble-minded. New York State has established a second institution for these cases, and Ohio is considering one for the northern part of the State, to receive the overflow from the present

institution at Gallipolis. A general trend was observed in the direction of special care and carefully designed institutions or colonies for the treatment of epileptics. Littlejohn and Ohlmacher report a number of successful cases treated with calcium lactate. The treatment is based on the fact that in epileptics there is a condition of tardy blood coagulability, and that calcium lactate has the effect of hastening coagulability. In Ohlmacher's cases a patient's blood, which coagulated in 4 minutes, under the influence of calcium lactate coagulated in 1½ minutes. The improvement in the patient's condition apparently keeps pace with the decreased time of coagulation. The drug is administered in doses of 10 grains three times a day.

EPISCOPAL CHURCH. See **PROTESTANT EPISCOPAL CHURCH.**

EPISCOPAL CHURCH, REFORMED. See **REFORMED EPISCOPAL CHURCH.**

EPWORTH LEAGUE. An organization of the young people of the Methodist Episcopal Church, founded in 1892. It is the largest society of young people in the world, and in 1909 had a membership of 235,646. During the year 540 charters were issued to senior chapters, and 290 to junior chapters. The chief event of 1909 was the holding of the international convention at Seattle. The League has entered upon a new financial policy, the support of its administrative work being received from the local chapter by direction of the General Conference. Under this provision its revenues are larger than ever before, enabling it to carry out larger plans and more aggressive policies than have hitherto been practicable. The officers in 1909 were: President, Bishop W. A. Quayle; Vice-President, Rev. Franklin Hamilton, D. D.; General Secretary, Rev. Edwin Randall, D. D.; Treasurer, Rev. Paul C. Curnick, D. D.

ERBEN, HENRY. A rear-admiral of the United States navy, retired, died October 23, 1909. He was born in New York City in 1832, and was appointed a midshipman in the navy in 1848. He was one of the earliest graduates of the United States Military Academy. While still a midshipman he sailed on board the old-fashioned frigate, *St. Lawrence*, on the complimentary mission of the United States to Great Britain on the occasion of the London Crystal Palace World's Fair in 1851. He served throughout the Civil War and was engaged in many important engagements, including the siege and bombardment of Fort Pillow, where he commanded the ironclad *St. Louis*. He assisted also in the capture of Memphis, and in June, 1862, was on Admiral Farragut's staff. In 1865 he was assigned to duty at the Brooklyn Navy Yard. He commanded many vessels, and on his promotion to the grade of rear-admiral was given command of the first American squadron seen for many years in British waters. He was retired before the Spanish-American War, but voluntarily returned to the service. Admiral Erben was a notable type of the old "sea dog" and was one of the most popular and well-known officers of the service.

ERHARDT, JOEL BENEDICT. An American lawyer and public official, died September 8, 1909. He was born in Pottstown, Pa., in 1838. He graduated from the University of Vermont, and taught school for a short time. He enlisted in the Seventh Regiment for the Civil

War, and on the expiration of his term re-enlisted in the First Vermont Cavalry. He served until 1863, when he was made provost marshal of the Fourth District of New York City. He took a prominent part in the suppression of the Draft Riots of that city. At the close of the war he was appointed Assistant District Attorney for New York, and in 1876 was made Police Commissioner. In 1889 he was appointed Collector of the Port of New York. He reorganized and rebuilt the New York and Northern Railroad, of which he was receiver, and became its president in 1886. He had varied business interests, and at the time of his death was president of the Lawyers' Surety Co.

ERITREA. An Italian colony on the African coast of the Red Sea. Area, estimated at nearly 90,000 square miles. Estimated population (1906), 450,000, mainly nomadic. Of the 3949 Europeans (including the military) 2333 were Italians. Asmara is the capital and Massawah (2275 inhabitants) is the chief port, with a good harbor. There is abundant pasture, and camels, oxen, sheep and goats, together with the products derived from them, are the main articles of trade. Irrigation is essential to the successful raising of crops, owing to extended summer droughts. The annual yield of the pearl fisheries is valued at 250,000 lire for pearls and 800,000 lire for mother-of-pearl. Gold is mined near Asmara. Salt is an important product, being the monetary currency of Southern Abyssinia. The imports and exports in 1907 amounted to 10,605,877 and 2,188,205 lire respectively. The principal articles of export in 1906 were valued as follows: Hides and skins, 862,000 lire; butter, 339,000; mother-of-pearl, 273,000; wax, 252,000; gum, 82,000. There are 48 miles of railway in operation and about 30 under construction. There are 381 miles of telegraph lines, and ten post-offices. In 1907 the shipping entered at Massawah aggregated 145,126 tons. The estimated revenue and expenditure in 1908-9 for the Colony of Eritrea (not including Italian Somaliland) balanced at 8,169,960 lire (state subvention, 5,622,960; colonial revenue, 2,547,000; military expenditure, 4,207,500; civil administration, 3,962,460). The Governor is Marquis Giuseppe Salvago Raggi. The Dahlak Archipelago (one of the important pearl fisheries) belongs to Eritrea.

ESTES, DANA. An American publisher, died June 16, 1909. He was born in Gorham, Me., in 1840. He was educated in the public schools, and after several years of clerkship in various business houses he enlisted in the Federal army in 1861, but was disabled from further service by wounds received at the second battle of Bull Run. He became a member of the publishing firm of Degen, Estes & Co. Subsequently he was with the firm of Lee and Shepard, and in 1872 became a partner in the firm of Estes and Lauriat, which was succeeded in 1898 by the firm of Dana Estes & Co. Mr. Estes was a traveler and archaeologist. He was the first American to penetrate the Nile country to Uganda and the Congo State. He organized and was the first secretary of the International Copyright Association.

ETHICAL CULTURE, SOCIETIES FOR. A system of societies formed in New York City in 1876, by Felix Adler. His object was to provide a centre for persons who had lost attach-

ment for traditional creeds and desired to aid in promulgating the moral development of the individual and of society. The societies engaged in various forms of activity, beginning such work as district nursing and making education a special concern. An ethical culture school was established in 1878 as the first free kindergarten in the State. The membership of the New York Society in 1909 was 1254, including 100 non-resident members. This does not include affiliated societies in neighboring cities, as in Philadelphia, Chicago, and St. Louis. There are branches of the society in England and on the continent of Europe, as well as in Japan, New Zealand and other countries. These societies are federated in the American Ethical Union, which conducts a summer school of ethics. This Union is in turn related to the International Ethical Union, which, at a congress at Eisenbach, Germany, in 1906, adopted as its basis this declaration: "The general aim of the Union is: To assert the supreme importance of the ethical factor in all the relations of life, personal, social, national and international, apart from all theological and metaphysical considerations. The Ethical Union does not wish to be understood as promulgating any special religion based on a particular belief, and regards ethical religion as the necessary crown of religious thought. The societies for ethical culture hold regular Sunday meetings and Sabbath and day schools. The New York Society also maintains a country recreation centre at Cedar Lake, N. J. Among its other activities are the Women's Conference, the Young Women's Union, the Young Men's Union, the Hudson Guild, and the Down-town Ethical Society. A new meeting house for the society in course of construction. The officers in 1909 were: Felix Adler, Leader; John Lovejoy Elliott, Percival Chubb, Leslie Willis Sprague, David Saville Muzzey, Henry Moskowitz and Alfred W. Martin, Associate Leaders.

ETHNOLOGY. See **ANTHROPOLOGY.**

EUGENICS. See **SOCIOLOGY.**

EVANGELICAL ALLIANCE FOR THE UNITED STATES. A religious organization founded in 1867. Its object is to manifest and strengthen Christian unity and defend and promote Christian liberty, and to encourage coöperation in Christian work without interfering with the internal affairs of the denominations. The Alliance has defended and promoted religious liberty in countries where religious persecution was severe and persistent and has prompted the observance of an annual week of prayer in all Christian lands and in all mission fields during the week beginning with the first Sunday of the year. The Alliance is undenominational and all the evangelical bodies are represented in its Board of Directors. The activity of the Alliance during 1909 was chiefly in preparing and publishing the Programme for the Week of United and Universal Prayer and sending it to 20,000 churches; and the pleading of the cause of the Armenians of Asia Minor in view of the terrible massacres of Armenians at Adana in April. The Department of State was memorialized and word was sent abroad urging an identical note of warning from the signatories of the Berlin Treaty. The president of the Alliance is Dr. Leander T. Chamberlain.

EVANGELICAL ASSOCIATION. A religious denomination, founded in 1800 by Jacob Albright among the Germans in Pennsylvania. The church polity of the Association is essen-

tially Methodist. It is represented in the United States and Canada, in Germany, and Switzerland. In 1909 there were 134,695 members and 1875 church edifices, with 12 itinerants and 429 local preachers. In the 270 Sunday schools were 169,080 scholars. The total contributions of the church for all purposes during the year was \$1,041,421. Domestic missions received attention and foreign missions are carried on in Japan. The church maintains a Biblical Institute, a college at Napier, Ill., and a publishing house at Cleveland, O. An important organization connected with it is the Young People's Alliance, which has a membership of over 40,000. The Association publishes several periodicals, the most important of which is the *Evangelical Messenger*, published in Cleveland, O. It has other publications in England and Germany. The church has three bishops. The publishing house and denominational headquarters are at Cleveland, O.

EVANS, GEORGE ESSEX. An Australian poet, died December, 1909. He was born in London in 1863. In 1881 he went to Australia and was for some time District Registrar at Towoomba. For twenty years he contributed to the Australian press and occasionally to the English press. His first book of poems was published in 1891. It was entitled *The Repentance of Magdalene Despar*. In 1898 he published *Loraine*, a long narrative poem of life on a sheen run in Australia. Several other volumes of his verse were published. He founded in 1903 the Austral Association for the advancement of music, art, literature and science. For several years he edited the *Antipodean*, and founded *The Rag* in 1904.

EVEREST, MOUNT. See **EXPLORATION.**

EVOLUTION. See **BIOLOGY.**

EXCHANGES. On December 14, 1908, Governor Hughes of New York appointed a committee, consisting of Horace White, chairman, and eight other prominent citizens in various walks of life, to inquire "what changes, if any, are advisable in the laws of the State bearing upon speculation in securities and commodities, or relating to the protection of investors, or with regard to the instrumentalities and organizations used in dealings in securities and commodities which are subject to speculation." This committee, paying its own expenses, made an intimate investigation of exchanges in New York City, took the testimony of those engaged in speculation and others qualified, and examined American and foreign legislation and experience in the regulation of speculative exchanges. Its report was submitted in June. This report defined speculation as "forecasting changes of value and buying or selling in order to take advantage of them." It pointed out the advantages of the exchanges in steadying prices and in enabling merchants and manufacturers virtually to insure themselves against fluctuations in the prices of those commodities upon which their business depends. After pointing out the distinction between speculation carried on by experienced and qualified operators and that indulged in by the inexperienced, the report stated that the difficulty in rooting out that which is economically and morally destructive lay "in the practical impossibility of distinguishing what is virtually gambling from legitimate speculation." The committee, however, felt that the most advantageous procedure would be the adoption of measures reducing speculation by persons

unqualified for it. The report then proceeded to analyze the business of the Stock Exchange, with reference to kinds of patrons, character of transactions, margin trading, pyramiding, short-selling, manipulation of prices, "wash sales" and "matched orders," corners, failures of brokers, desirability of the examination of the books of brokers by public authority, listed and unlisted securities, fictitious trades, the unit of trading, and the desirability of requiring the Stock Exchange to incorporate under the State laws. The committee advised against the examination of brokers' books by public authority, believing that examination under the direction of the governors of the exchange would be sufficient. A majority likewise advised against incorporation for similar reasons.

The Consolidated Exchange and the curb market were also considered. With reference to the latter the report pointed out that great evils result from its unorganized status. About 85 per cent. of the business of the curb comes through members of the Stock Exchange, and in this fact the committee finds a basis for the introduction of regulations governing the methods of dealing on the curb and the admission of securities to quotation thereon. By refusal of the regular Stock Exchange members to continue intercourse if desired regulations were not complied with, the curb business could be brought to a sounder basis. With reference to fraudulent financial advertisements in the press and by means of circulars, the committee recommended most stringent legislation. It also recommended amendments to the law, in effect September, 1908, making the keeping of a bucket-shop a felony, so as greatly to increase the penalty for a second offense.

The Produce, Cotton, and Coffee; the Fruit, and the Hay; the Mercantile, dealing with dairy and poultry products, and the Metal Exchanges were all investigated. The committee condemned the recently introduced trading in mining stocks on the Produce Exchange. The function of the Cotton Exchange in relieving cotton manufacturers from the necessity of becoming speculators in cotton themselves was duly praised, but the inordinate speculation that at times occurs was condemned. The committee recommends simply that the officers of the Exchange discipline members engaging in such practices. With reference to the Mercantile and Metal Exchanges the committee found that price quotations were emanating from both which were not the result of actual dealings, but artificial estimates by quotation committees. On this account the investigators recommended that the charters of both be repealed.

The report closes with a résumé of the German experience, showing that stringent legislation against Berlin exchanges in 1896 proved disastrous and led to a modification of the law in 1908 with a view to regaining business and capital driven abroad. The prohibition of short-selling, which is still retained by the German law, augments price fluctuations.

Herbert Knox Smith, Commissioner of Corporations, in December issued the final sections of a report on the methods of trading upon the New York and New Orleans Cotton Exchanges. Earlier sections were issued in 1908. The report recognizes the value of such great central markets, but condemns the methods of dealing in futures in vogue. The parts of the report issued in 1908 condemned the "fixed-difference" system of the New York Cotton Exchange,

whereby the relative values of different grades of cotton are arbitrarily determined for as much as a year in advance. No alteration of its methods was made by the New York Exchange following that report, though a committee was appointed to make investigation, and these later sections of the report therefore are severe in their condemnation of the artificial quotations, and especially of the fictitious future prices, resulting from the system practiced. The report states that the early sections led to action by the New Orleans Exchange with a view to correcting abuses.

EXPERIMENT STATIONS, AGRICULTURAL. See AGRICULTURAL EXPERIMENT STATIONS.

EXPLORATION. The largest phases of geographical field work during the year were in the polar regions (see POLAR RESEARCH). In other parts of the world there was great exploratory activity, but nearly all of it was devoted to comparatively small areas. Now that most of the land surfaces are fairly well known, a new kind of exploration has come in. It consists of the minute and more scientific study of regions most of which have already been revealed in their general characteristics. This work is now widely carried on by the agents of governments, of scientific societies and of railroad and industrial companies. Exact knowledge of many regions is thus being rapidly accumulated.

In Canada, for example, the explorers of the Interior Department now report that the coal fields of Alberta are, by far, the most extensive in the Dominion, and the new map shows that they cover a large part of the province, over 20,000 square miles of the beds being regarded as workable, while the coal measures over an equally large area may yet be found to have considerable value. The Canadian Northern and Grand Trunk Pacific railroads have now entered these coal fields on their way to the Pacific.

The north shore of the Gulf of St. Lawrence was long supposed to be almost worthless, but this view has been greatly modified by the recently completed studies of the region, whose timber resources are large, while the falls and rapids in many of the rivers supply enormous water power that will some day be harnessed.

The Northeast Peninsula of Labrador, at the entrance to Hudson Strait, is now being explored by the government of Newfoundland. The results of the studies and surveys of the past season have not yet been published. The mountains of this region have been seen from the decks of thousands of fishing and other craft, but, except along the coast, few facts about the country were known until Bernard Hantzsch published a paper in Germany, last year, on his biological studies in that region in 1906. Mr. A. H. Harrison, having returned from his explorations in the Canadian Arctic, has published his map of the larger part of the delta of the Mackenzie River, the best map of the delta channels yet produced. Mr. V. Steffnsson, who is continuing his ethnological work among the Eskimos of northern Alaska and Canada, reports that the charts of the northern coast of the continent, between the Mackenzie River and Point Barrow, are so poor that, many times, they are an impediment instead of a help to navigators.

Peru was more active than any other South American country in the promotion of discovery. A number of government expeditions were engaged in the exploration of drainage basins to the east of the Andean ranges and especially

in mapping the courses and the navigability of a number of tributaries of the large rivers. Thus the entire upper part of the Rio Madre de Dios system is being gradually revealed. Peru, Chile and Brazil produced practically all the governmental maps giving results of recent exploratory work. Chile is giving special attention to surveys of mining areas and these map sheets, together with the railroads' surveys, are supplying material for the better mapping of the republic. The topographic survey of the state of São Paulo, Brazil, is steadily advancing and its map sheets are comparable with the best work of the kind. Private railroad and navigation companies having concessions in Bolivia, Brazil and other republics are finding it necessary in many cases to make their own surveys and maps and their contributions are becoming a part of the best material available for the growth of our knowledge of this still poorly mapped continent. After Miss Annie Peck ascended Mount Huascarán, Peru, in 1908, she expressed the view that one of its two summits was over 23,000 feet high, and accordingly the highest known summit of the Western World, as the triangulation results of Schrader gave Aconcagua only 22,812 feet. Mrs. Fanny Bullock Workman, who holds the woman's record for high ascents, thereupon sent from France three topographers, who, after establishing the heights above sea level of four stations in the neighborhood of Huascarán, triangulated from each of them the two peaks of the mountain, with these results: Height of north peak, 21,812 feet; south peak, 22,187. Aconcagua continues to hold its supremacy among American summits.

Commander d'Ollone has returned to France at the end of his successful archaeological and geographical labors in western China and eastern Tibet. He avoided the routes of other explorers and confined his attention to some of the least known districts. His narrative and map have not yet been published, but it is known that they will throw more light on the remarkable bend of the Ya-Hoang-ho in Tibet and reveal a new district that differs much from the more typical parts of the Tibetan plateau. It stands at an altitude of 13,000 feet and is a plain traversed by low mountain swells that are covered with grass and everywhere passable by horses. The people are pastoral and live on horseback. The Comte de Lesdain has published an account of the longest journey that a European traveler, accompanied by his wife, has yet made through the lesser known parts of Asia. It extended from Peking through Mongolia and Tibet to India and the traveler was able to throw a little new light on the geography of the Ordos and Ala-shan regions of Asia. The Geological Survey of India announced a new determination of the height of Mount Everest, the highest mountain in the world. The elevation now assigned is 29,141 feet, which is the mean value of six trigonometrical determinations all made at stations nearer to the mountain than those upon which depended the height of 29,002 feet that had been the accepted elevation since 1850. The Survey reports that the height, 29,141 feet, is still probably too small, as it is not yet possible to eliminate all sources of error in these determinations; also that Mount Godwin Austen (K2), 28,250, is the second highest known mountain; the highest peak of Kinchinjunga, 28,146 third. All of them are in the Himalayas. The Duke of the Abruzzi endeavored in May to reach the top of Mount Godwin Austen, but was

compelled, at a little over 19,000 feet, to give up the attempt. About a month was spent in topographic surveying near the mountain. While mountaineering in the Karakoram or western part of the Himalayas, last summer, Dr. T. G. Longstaff made the first crossing of the Saltoro Pass, 18,200 feet, and from it he saw the Siachen glacier, which he explored and found to be 44 miles long instead of 20, as has been supposed. It is therefore the longest glacier in the Himalayan system and probably the largest outside of Alaska and the polar regions. His most interesting discovery was a group of very lofty peaks, forming a new chain of the Karakoram and culminating in Teram Kangri, 27,610 feet. Mr. William E. Geil, of Doylestown, Pa., produced his book describing his journey of the previous year along the entire extent of the Great Wall of China. Many of his photographs give wholly new views of the Wall. The record of Major H. R. Davies' four journeys in Yunnan to study the feasibility of a railroad between India and the Yangtse River has proved to be the best contribution yet made to our knowledge of this great western province of China. More than half of the regions he visited had never been explored by white men. Mr. G. W. Bury, supported by the Royal Geographical Society, entered South Arabia, near Aden, in the spring to explore a part of the vast unknown region, but his purpose was defeated by the treachery of the inland Arabs and his party barely escaped to the coast with their lives.

Mount Cameroon, the highest summit of West Africa, was, till recently, supposed to be an extinct volcano. It gave some evidence, however, in 1908 that its fires were not quite extinguished and, on April 26, last year, it burst into violent eruption and continued in a state of great activity for some weeks. It happened that Lieutenant Boyd Alexander, the African explorer, was camping on the mountain slope at the time. He has written the only account of the event. Severe earthquakes accompanied the eruptions and over 100 shocks were felt in one night. Lava streams, descending the mountain, destroyed all the timber in their way, terrific explosions occurred, fragments of rock were thrown high into the air and the sky was red with the reflection from the molten lava in the two burning craters. An unusual incident was the screams and frenzied antics of troops of terrified monkeys. The German settlements and plantations on the lower slopes were not injured. All over those parts of tropical Africa where the whites are establishing their enterprises there is now great scientific activity, of which the work done by the French in Dahomey is a good example. They have just completed two years' investigations which give a good idea of the geological formations, mineral resources, geography and climate of Dahomey, and have studied the influence which these physical phenomena have exerted in the distribution of the human inhabitants and of the most important varieties of vegetation. The Belgian Colony of the Congo is continuing the building of railroads around the short stretches of rapids in the Upper Congo and when the work is completed, there will be steam transportation, by rail and river, for 2500 miles up the Congo. A branch of the Cape to Cairo Railroad (q. v.) has been extended into Katanga, the southeast province of the Belgian Congo, whose resources in copper are believed to be among the largest in the world. Another railroad, now completed for about 100 miles west

of Benguela, is intended to give the Katanga mineral field an outlet to the Atlantic.

The Dutch are now very active in the exploration of their part of New Guinea, which, for years, has been the least known portion of the island. Military detachments have been surveying various rivers, especially those which debouch on the south coast; and two Dutch societies have sent out an expedition headed by H. A. Lorentz to study the interior of their colony in the region of the snowy range that traverses it. The boundary between German and British New Guinea was delimited during the year and a joint German-Dutch Commission has been sent out for the demarcation of the boundary between their colonies.

EXPLOSIVES. See CHEMISTRY, INDUSTRIAL.

EXPOSITIONS. During the year there was held in the United States the Alaska-Yukon-Pacific Exposition in Seattle (see below), and in Quito, Ecuador (see below), the National Ecuadoran Exposition.

The Argentine Republic will commemorate the first centenary of its existence by an international exhibition of agriculture and of railway and land transport, in Buenos Ayres, from May 25 to November 25, 1910. All of the South American governments and many of those of Europe have promised to send exhibits. The site selected will cover an area of 180,000 square metres and the buildings now in course of erection, as shown by the published plans, are dignified and worthy of the event. A Railway Congress will be held simultaneously with the Exhibition. A Universal and International Exposition will be held in Brussels, Belgium, for six months, beginning in April. A site of 200,000 acres has been chosen and it is expected that at least \$5,000,000 will be spent in the installation of this Exposition. Most of the European governments and many of those of Central and South America have taken space or built special pavilions. An American Exposition will be held in Berlin during June, July, and August, 1910, for the purpose of presenting an exhibition of the industrial achievements, the natural resources, and the progress of the United States along artistic and intellectual lines. Prince Henry of Prussia is honorary president of the German Commission, and J. Pierpont Morgan holds a similar relation to the American Commission. Expositions to be held in Turin and in Rome, Italy, are announced for 1911.

ALASKA - YUKON - PACIFIC EXPOSITION. This was held on Union Bay of Lake Washington in the city limits of Seattle, Washington, from June 1 to October 16, 1909.

ORIGIN. The exhibition of products from Alaska at the Lewis and Clark Exposition, held in Portland, Oregon, in 1905, was so inadequate that the collector appointed by Governor Brady to receive exhibits, finding that nothing of a representative nature could be assembled in the time at his disposal, and believing that an exhibition of a superior character could be held, wrote to the secretary of the Alaska Club in Seattle urging that "an Alaska Fair be held in Seattle in 1907." The local newspapers were quick to recognize the commercial value of such an undertaking and in August, 1905, the Alaska Club provided Godfrey Chealander with funds and transportation to visit Alaska for the purpose of interesting the Northern people in such a proposition. After his return, in

March, 1906, a meeting of fifty representative business men of Seattle was held and it was decided to hold an Alaska-Yukon Fair. On May 8, 1906, articles of incorporation of an Exposition Company with a capital stock of \$500,000 were filed and on August 17 amended articles inserting the word *Pacific* were placed on record. The object of the Exposition was given as "the exploitation of Alaskan resources and those of the countries bordering on the Pacific Ocean."

ADMINISTRATION. Originally the officers of the corporation were: J. E. Chilberg, President; John H. McGraw, Vice-President; R. A. Ballinger, Vice-President; A. S. Kerry, Vice-President; W. M. Sheffield, Secretary; C. R. Collins, Treasurer; and I. A. Nadeau, Director-General. Subsequently, Mr. Ballinger resigned as one of the vice-presidents, and Mr. H. C. Henry was chosen to fill his place. The other officers were: John W. Roberts, General Counsel; Frank P. Allen, Jr., Director of Works; Henry E. Dosch, Director of Exhibits; James A. Wood, Director of Exploitation; G. E. Mattox, Director of Concessions; Dr. E. M. Rininger, Medical Director; F. N. Innes, Musical Director; Louis W. Buckley, Director of Special Events; G. L. Berg, Director of Fine Arts; Welford Beaton, Chief of Publicity; A. D. Barrall, Chief of Admissions; James Frederick Dawson, Landscape Architect; and C. W. Wappenstein, Chief of Police.

FINANCES. On October 1, 1906, the stock of the Exposition Company, amounting to \$500,000, was placed on sale and the entire issue was taken at once. On December 28 supplemental articles of incorporation were filed increasing the capital stock from \$500,000 to \$800,000 and the additional shares were promptly disposed of. Two years later bonds amounting to \$350,000 were sold within two days after being placed on the market. The State Legislature of Washington authorized a contribution of \$1,000,000, and the appropriation by the National government for its exhibits was \$600,000. Among the various States, California and Oregon each raised \$100,000; New York \$75,000; and Missouri, Idaho, Utah, and other States less amounts. The complete Exposition involved an expenditure of approximately \$10,000,000.

LOCATION. The site chosen was a portion of the campus of the State University of Washington, and consisted of a narrow peninsula between Lake Washington on the east and Lake Union on the west. The two lakes were connected by the Lake Washington ship canal. The grounds, covering about 250 acres, sloped gradually down to the water's edge. The main entrance to the Exposition was within twenty minutes' ride from the centre of the city by electric street car railways, and was reached by five different lines. The laying out of the grounds was under the direction of John C. Olmsted, of Brookline, Mass., and brilliant flowers, prominent among which was the cactus dahlia, the official flower of the Exposition, formed a most conspicuous feature of the scheme.

BUILDINGS AND GROUNDS. In the general plan of architecture, the style followed was the French Renaissance. The principal buildings were grouped on either side of a terraced court at the summit of which was the United States Government Building with its great dome 270 feet high, that at night was brilliant with electric lights. On the west, in descending

order, were the four buildings devoted to the exhibits of Alaska, Europe, Agriculture, and Mining, while similarly on the east side were those containing the exhibits of the Philippines and Hawaii, Oriental Countries, Manufactures, and King County. Beyond, to the west, was the Fine Arts Building and the Auditorium, while on the east was the Forestry Building and the two large State buildings of California and New York. The lower end of the Court was open, giving a view in the distance of Mount Rainier with its cap of perpetual snow, the highest peak in the United States. In the immediate foreground of the lower opening of the Court were the formal gardens of the Exposition, to which the name of Vista Gardens was given. In the centre of the Court was a circular basin or lake, 260 feet in diameter, from which a gigantic geyser played 150 feet in the air. Seven of the Exposition buildings, the Fine Arts, Auditorium, Machinery Hall, Forestry, Washington State, Arctic Brotherhood, and Woman's Building, are permanent structures, and at the close of the Exposition became the property of the University of Washington. The first three are of brick and steel. The Fine Arts Building, which is in the Roman Classic style, is to be the permanent chemistry building, and the Auditorium will be used for university public gatherings. It has seating capacity for 2500 persons. The front façade consists of a Corinthian colonnade, which makes the dimensions of 180 by 150 feet appear smaller than they really are. Machinery Hall, used by the engineering department of the University, is also of permanent brick and steel construction. The Arctic Brotherhood Building is built of logs and is typical of the homes in Alaska. It will be used as a museum of natural history. The Forestry Building, one of the largest log-houses ever built, became the forestry department of the University at the close of the Exposition.

In the plaza in front of the Government Building stood the Exposition monument. It was 80 feet in height, and was entirely coated with gold from Alaska and Yukon. About \$7000 worth of gold dust was used to gild it. At the base were four figures emblematic of the Northland, the South Pacific countries, the Pacific Coast, and the South Seas. The column was Corinthian with an astronomical globe showing the signs of the zodiac, and surmounted with the American eagle. On Flag Day, June 14, Lorado Taft's bronze statue of George Washington was unveiled. A statue of William H. Seward commemorating his share in the Alaska purchase is one of the permanent memorials of the Exposition.

AMUSEMENT FEATURES. These were collected on the west side of the grounds, along an avenue about three-fourths of a mile long, to which the name of "Pay Streak" was given. In addition to the usual entertainments, a special feature was the large number of ethnological shows, such as Chinese Theatre, Eskimo Village, Fair Japan, Igorrote Village, Spanish Theatre, etc.

HISTORY AND RESULTS. On June 1, 1907, the ground was broken with suitable ceremonies, including an address by the Hon. John Barrett, who was the representative of President Roosevelt. In accordance with the promise that Seattle would produce "the fair that will be ready," two years later, on June 1, President

Taft pressed a telegraph key of Alaskan gold that inaugurated an Exposition that was essentially complete. At midnight on October 16 the fair closed with every debt paid and enough surplus on hand to meet the expense of wrecking the buildings and clearing the grounds. The total attendance was 3,740,561 persons.

ECUADORAN EXPOSITION, NATIONAL. The centenary of the independence of Ecuador was celebrated by an international exposition held in Quito from August 10 to December 31. The site of the Exposition was about a mile from the centre of the city. Besides the main building, erected by the government, there were pavilions built by the governments of Chile, Colombia, Italy, and France. The United States building was a reproduction on a small scale of the White House in Washington. The Director-General was Juan Francisco Game, and the representative of the United States, Ernest H. Wands. A special issue of commemorative stamps was placed in circulation on August 9 to run until December 31, 1909.

FAILURES. See **FINANCIAL REVIEW**, paragraph *Failures*.

FALKLAND ISLANDS. A group of islands in the South Atlantic, constituting a British Crown colony. Area (East Falkland, 3000; West Falkland, 2300; 100 small islands, 1200), 6500 square miles, besides the dependency of South Georgia, 1000 square miles. Other dependencies are the Scotch Shetlands, South Orkneys, the Sandwich group, and Graham's Land. Population (estimated 1907), 2266, exclusive of the whaling settlement in South Georgia. Capital, Stanley, on East Falkland, with 800 inhabitants. Education is compulsory, and there are government and parochial schools. There are 2,325,154 acres under pasture, and sheep-raising is the chief industry. There were (1907), 695,747 sheep, 4500 cattle, and 3000 horses. Total imports (1908), £73,062; exports (wool £105,495), £189,506. Total tonnage entered (1908), 281,351. The revenue and expenditure in 1908 were £17,775 and £19,767 respectively. The Governor (William Lamond Allardyce) is aided by an executive council and a legislative council, all of whose members are nominated by the Crown.

FARM ANIMALS. See **STOCK RAISING**.

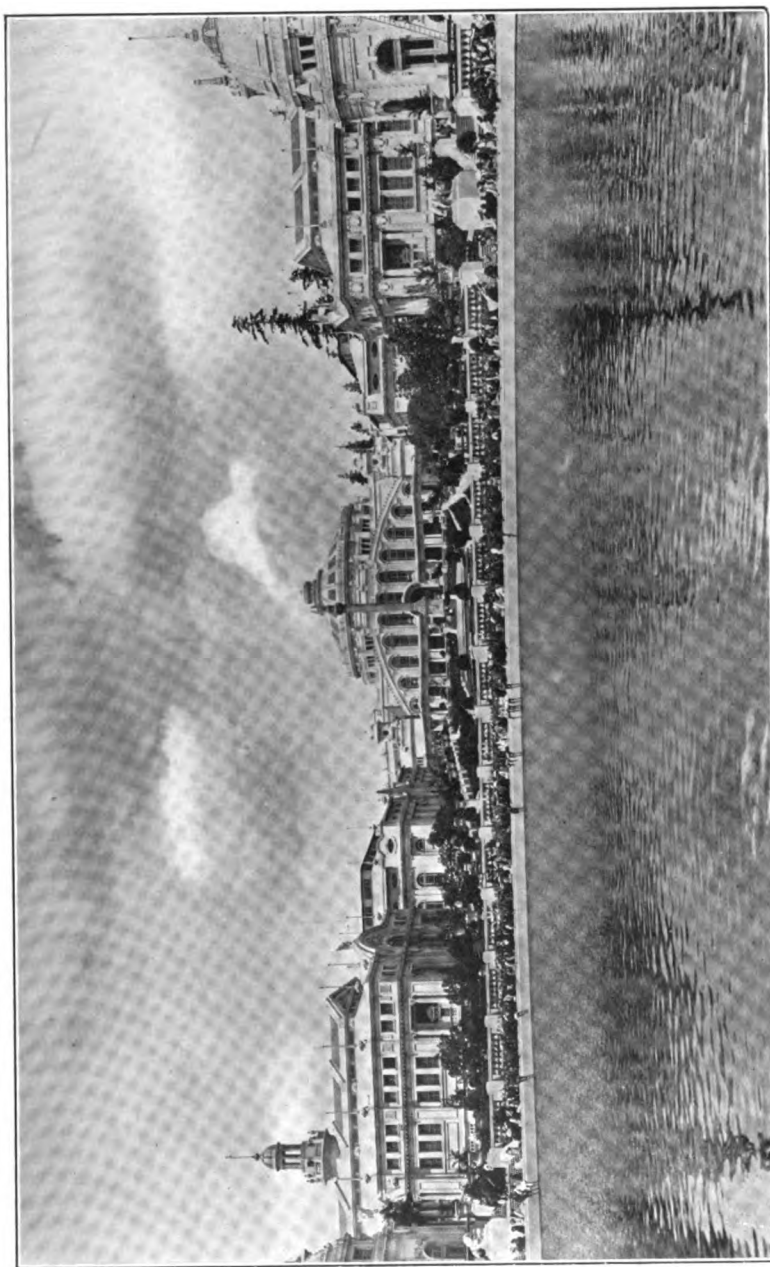
FARM ANIMALS, DISEASES. See **VETERINARY MEDICINE**.

FARM EDUCATION. See **AGRICULTURAL EDUCATION**.

FARMS, ABANDONED. See **AGRICULTURE**.

FEDERAL CHILDREN'S BUREAU. See **CHILD LABOR**.

FEDERAL COUNCIL OF CHURCHES OF CHRIST IN AMERICA. An organization formed as a result of the meeting of 500 officially appointed delegates of 30 religious denominations, held in New York City in November, 1905. These delegates recommended a plan of federation, which was adopted by the official action of the National Conference of Churches, representing an aggregate membership of about 15,000,000. The objects of the Council are, first, to express the fellowship and catholic unity of the Christian Church; second, to bring the Christian bodies of America into united service; third, to encourage devotional fellowship and mutual counsel concerning the spiritual life and religious activity



Courtesy of "Engineering Magazine"

THE ALASKA-YUKON-PACIFIC EXPOSITION AT SEATTLE—GENERAL VIEW

of the churches; fourth, to secure a larger combined influence for the churches of Christ in all matters affecting the moral and social conditions of the people so as to promote the application of the law of Christ in every relation of human life; fifth, to assist in the organization of local branches of the Council and to promote its aims in their committees.

The following Christian churches are represented in the Christian Council; Baptist Church (North), Free Baptist Church, Negro Baptist Church, Christian Connection, Congregational Church, Disciples of Christ, Evangelical Association, Evangelical Synod, Friends, Evangelical Lutheran Church, General Synod, Methodist Episcopal Church, Methodist Episcopal Church (South), Primitive Methodist Church, Colored Methodist Episcopal Church of America, Methodist Protestant Church, African Methodist Episcopal Church, African Methodist Episcopal Zion Church, Mennonite Church, Moravian Church, Presbyterian Church in the U. S. A., Cumberland Presbyterian Church, Welsh Presbyterian Church, Reformed Presbyterian Church, United Presbyterian Church, Protestant Episcopal Church, Reformed Church in America, Reformed Church in the U. S. A., Reformed Episcopal Church, Seventh Day Baptist Churches, United Brethren in Christ, United Evangelical Church.

The Council is to meet every four years. Its first regular meeting was held in December, 1908. Between its meetings its work is carried on by a proportionately representative executive committee and certain subordinate committees or commissions with definite duties. The Executive Committee met in Louisville, Ky., in December, 1909. At the general meeting in 1908 several remarkable resolutions on industrial and social questions were adopted by the Council and a Commission on Church and Social Service was formed. At the meeting of the executive committee in Louisville this commission was clothed with power to draw upon the resources of the churches for its work. The president of the Council is Bishop E. R. Hendricks, of the Methodist Episcopal Church (South). The officers of the Executive Committee of the Council are: Chairman, W. H. Roberts, D. D.; Secretary, E. B. Sanford, D. D. The churches represented in the Council number over 30,000,000 communicants.

FEDERATED MALAY STATES. See MALAY STATES.

FEEDING STUFF. See STOCK RAISING.

FENCING. The sixteenth annual intercollegiate tournament was again won by the United States Military Academy, the final score being: West Point won 29, lost 4; United States Naval Academy won 21, lost 12; Yale won 16, lost 17, and Massachusetts Institute of Technology won 9, lost 24. Pennsylvania, Columbia, Princeton and Cornell all failed to reach the finals. In dual matches, West Point defeated Harvard 7 to 2, Yale 6 to 3 and Pennsylvania 8 to 1. United States Naval Academy defeated Yale 5 to 4, and Cornell 5 to 4. Pennsylvania defeated Princeton 5 to 4, and United States Naval Academy 5 to 4, and was defeated by Cornell 7 to 2. At the national championships the dueling swords were won by A. Delapore of the Fencers' Club of New York, the foils by O. A. Dickinson of the United States Military Academy and the sabres by A. E. Sauer of the I. A.

C. The Saltus cup and medals were won by the Turn Verein, the team comprising John Allaire, George Reimherr and Paul Benzenberg.

FENN, GEORGE MANVILLE. An English author, died August 27, 1909. He was born at Westminster, England, in 1831. He began his career as a tutor, but soon left teaching to engage in journalism. He contributed to many magazines and was at one time editor of *Cassell's Magazine*, and afterwards editor and proprietor of *Once a Week*. He is best known, however, as a writer of books and stories for boys. He wrote over 100 books and 1000 short stories and magazine sketches. Among his best known books are *Nic Revel* (1898); *Draw Swords* (1898); *The King of the Beach* (1899); *Blind Policy* (1905); and *Aynsley's Case* (1906).

FERRER Y GUARDIA, FRANCISCO. A Spanish educator and anarchist, executed October 13, 1909, for complicity in rioting in Barcelona, Spain, in the summer of 1909. He was born at Abella in the province of Barcelona in 1859. His father was the owner of a small fruit farm and Ferrer received the training of the average Spanish peasant. He early showed radical tendencies and at the age of 14 he was obliged to leave his native town on account of having committed the sacrilege of drinking by stealth the wine reserved for sacerdotal use. He secured a clerkship in the railway service and was rapidly promoted to the post of inspector. His radicalism, which now included republicanism, involved him in an insurrection led by General Villacampa, and at the age of 26 Ferrer was an exile in Paris. At this period his ability as a teacher first disclosed itself. He subsisted partly by the sale of wine on a commission basis and partly from a small stipend received as secretary for the Spanish patriot, Zorilla. He devoted all his leisure time to study, especially of the sciences, of morals as distinguished from supernatural religion, and of the sovereignty of the individual in opposition to the institutional and family life. He also gave a course of popular lectures and taught in a night school organized under anti-clerical auspices. Ferrer devoted himself more and more to the philosophy of free thought and anarchy, undertaking the translation into Spanish of many atheistic historians and philosophers. He was left a legacy of about \$200,000, and fifteen years after he had left Spain he returned to Barcelona, where his memory as a former Revolutionist had apparently been forgotten. He set up and equipped a press for the dissemination of the philosophy of the leaders of French anti-clericalism and established at Barcelona the "Modern School." His success as an educator was remarkable, largely because of his magnetic personality. Through his printing press in the meantime he turned out many editions of the world's leading anarchist pamphlets for circulation among the wage-earners of Barcelona, and through its graduates the "Modern School" made itself conspicuous among the trades unions on the subject of the iniquity of the government and the need of a social revolution. The press and the school were frequently raided by the police, but Ferrer was on each occasion absent. He was always conspicuous at free-thought conferences, anarchist gatherings and assemblages of "advanced" thinkers. In 1906 he was arrested on the charge of complicity with

Manuel Morales in an attempt on the life of King Alfonso at the time of his marriage with Princess Ena, but on this charge he was acquitted. He was arrested on September 1, 1909, by the Spanish government on the charge of being a noted anarchist and of being chiefly responsible for the uprising in Barcelona. After a trial he was declared guilty and was executed. For the result of this action of the Spanish government, see the article SPAIN, paragraphs on *History*. Ferrer had little originality, but he is said to have been one of the most remarkable teachers of his generation. He had the faculty of digesting masses of technical details and of accumulated evidence, and of formulating them lucidly for the benefit of even the lower types of intelligence.

FERTILIZERS. There was marked progress throughout the world during 1909 in the production and consumption of fertilizers. This may be ascribed to the gradual extension of the use of improved and more intensive systems and methods of farming, stimulated by an era of high prices for farm products and the rapid exhaustion of the supply and of the native fertility of the rich virgin soils. Under the influence of this incentive the use of commercial fertilizers was extended to regions where formerly they were used to only limited extent or not at all, as, for example, Australia, Japan, China, Manchuria, South Africa, and the West Indies.

Exact and detailed statistics of fertilizer production and consumption in 1909 are not available, but such data as are at hand indicate substantial growth in all directions. Statistics compiled by the United States Department of Commerce and Labor show that production has not kept pace with consumption in the United States in recent years. The imports of fertilizers and materials largely used in the manufacture of fertilizers in 1908 were valued at over \$12,000,000. In addition over \$12,000,000 worth of Chilean nitrate was imported. Fertilizers to the value of nearly \$11,000,000 were exported to other countries. It is estimated that the balance of trade in fertilizers is at the present time against the United States to the extent of about \$17,000,000 annually.

Apparently there was a slight falling off in the American consumption of potash salts in 1908. Of an estimated total German production of 495,000 tons of actual potash, valued at \$26,000,000, the United States consumed 110,000 tons, Germany 272,500 tons. The increase in American consumption in 1909 is estimated at from 10 to 20 per cent. The German potash industry and the prices of potash were unsettled begun in 1897, after the crisis of 1893 had Potash Syndicate and the acquisition of certain of the German mines by a combination of American fertilizer interests. It is stated that the American companies secured their supply of potash for 1910 at 40 per cent. less cost than in previous years, and therefore the prospect for much lower prices for potash in fertilizers is good. There was a decided fall in the price of Chilean nitrate of soda, ascribed to increased production following the dissolution of the nitrate syndicate in March, 1909.

There was a marked revival of interest in the production and consumption of sulphate of ammonia as a fertilizer, especially in the United States. Attention was sharply drawn to the large amount of this material annually going to waste, particularly in this country, in the manu-

facture of gas and coke. Statistics were presented which indicate that in 1908 the United States consumed over 121,000 tons (of 2000 pounds) of sulphate of ammonia, producing something over 87,000 tons and importing the balance, mainly from England, which annually produces over 360,000 tons, closely followed by Germany with a production of 345,000 tons out of a total production for the whole world of 985,000 tons.

There was considerable activity in 1909 in the development of processes and their application in the manufacture of nitrogen compounds from the free nitrogen of the air and in the determination of their value as fertilizers. The annual production of Norwegian nitrate (basic lime nitrate) made by the Birkeland-Eyde process, and of calcium cyanamid made by the Frank and Caro and similar processes, is estimated at about 25,000 tons each. Factories for the manufacture of these products are now in operation at various places in Europe, where cheap water power is available, as well as at Niagara Falls, Canada.

Considerable attention was also given during the year to the question of the utilization of peat for agricultural purposes, and at least one efficient process (Woltereck's) for the manufacture of ammonia from moist peat was reported and tested with very satisfactory results. The direct use of peat as a fertilizer also received some attention. The conservation of the Peruvian guano deposits also claimed attention during the year, and steps were taken to protect the guano birds and to introduce a system of rotation in working the deposits which would conserve and increase the supply of this valuable fertilizer.

The sources of supply of fertilizing materials were increased during the year by the discovery and exploitation of a number of new phosphate deposits in different parts of the world, including Australia, New Zealand, South Sea Islands, South Africa, Algeria, Tunis, and the West Indies. Further examination of the phosphate deposits in the area of Wyoming, Utah, and Idaho, withdrawn from settlement by executive order in 1908, indicate a visible supply of at least 1,400,000,000 tons of phosphate. Various bills having as their object the opening up of these lands are now being considered by Congress. The world's consumption of phosphate in 1908 is estimated as about 5,500,000 tons, the larger part of which was converted into superphosphate, the production of which in 1908 was 7,500,000 tons.

A large part of the scientific investigation relating to fertilizers during 1909 dealt with the relative efficiency of different forms of phosphoric acid, potash and nitrogen. The investigations of C. G. Hopkins in this country showed that raw phosphates, finely ground, could be profitably used in connection with an abundance of humus-forming organic matter in improving certain classes of Illinois soils. On the other hand, the Association of German Agricultural Experiment Stations issued a statement strongly advising against the general use of raw phosphate. Much attention was given to a study of the relative fertilizing value of nitrate of soda, sulphate of ammonia, and the new nitrogen compounds made from the nitrogen of the air, as well as other nitrogenous fertilizers. As a result of repeated tests at the New Jersey Experiment Station with different crops it was reported that, taking the availability of the

nitrogen of nitrate of soda as 100, the relative availability of the nitrogen of sulphate of ammonia was 69.7, of dried blood 64.4 and of manure 42.7. European experiments indicate that the nitrogen of calcium cyanamid is about equal to that of sulphate of ammonia as a fertilizer, but that Norwegian nitrate (basic lime nitrate) is fully equal, and possibly in certain cases superior, to nitrate of soda. Experiments on the fertilizing value of potash in various silicates—feldspar, mica, green sand, lava meal, etc., showed as a rule a low efficiency. Experiments were reported showing a marked stimulating or fertilizing effect from the use of small amounts of manganese salts.

A notable contribution during the year to the literature of fertilizers was the book by A. D. Hall, director of the Rothamsted Experiment Station, on *Fertilizers and Manures*. There also appeared during the year a revised English edition by Sir William Crookes and J. Percival of George Ville's book on *Artificial Manures*, which has been declared by competent authority to be an unrivaled exposition of the principles underlying the use of artificial fertilizers.

FIJI ISLANDS. A group of islands in the Southern Pacific, constituting a British Crown colony. Area (Viti Levu, 4112 square miles; Vanua Levu, 2432 square miles), including 225 small islands, 7435 square miles. Capital, Suva, in Viti Levu. Population (1901), 120,124 (94,397 Fijians, 17,105 Indian immigrants, 2459 Europeans); estimated in 1907, 128,404. There are government and mission schools. The Roman Catholic and the Wesleyan missions maintain various institutions, religious and educational. Vegetation is luxuriant. Sugar-cane, tea, cotton, corn, tobacco, arrowroot, coconuts, and fruits are grown. There are six sugar-mills, with collective daily output of 420 tons. The imports and exports for three successive years were as follows: 1906, £609,496 and £603,410, respectively; 1907, £643,007 and £881,364; 1908, £662,654 and £878,393. Practically the entire trade is with British colonies (imports £646,029, exports £878,112, in 1908). Total tonnage entered and cleared in 1907, 455,229. The revenue and expenditure for three successive years is given as follows: 1906, £185,424 and £149,374 respectively; 1907, £179,802 and £156,811; 1908, £178,015 and £197,798. The public debt stood (1908) at £124,115 (£55,815 to the British government, bearing no interest). The Governor (Sir Everard im Thurn) is appointed by the Crown and is assisted by an executive council; he is president of the legislative council. Native affairs are administered by the chiefs, under the supervision of the Governor.

FILTRATION. See WATER WORKS.

FINANCIAL REVIEW. The financial and industrial conditions of 1909 can be understood only in relation to the events of the preceding years. The year of 1907 marked the culmination of the long upward swing in trade begun in 1897, after the crisis of 1893 had spent its force, and broken only by a temporary setback in 1903-4. That same year, however, brought a banking panic in October which forms the chief landmark in recent financial history. Thereafter there was a continued recession in business until the early spring of 1908, followed by a gradual revival. While 1908 was thus an after-panic year, the accumulation of bank reserves furnished the basis for an excellent securities market, led to the flotation

of many new issues and tended to give a more confident tone to all credit operations. The year 1909 was a remarkable one in the history of American financial and industrial development. Though its beginning was only fifteen months after the disastrous panic of October, 1907, trade was already beginning to revive; by its close the recuperation was not only fully accomplished, but in some lines new records had been established. This remarkably quick readjustment tended to confirm the views expressed at the time of the 1907 collapse, that the industrial and business conditions were sound at bottom but were hampered by defective banking and currency arrangements. The closing months of 1908 brought out some evidences of quickening confidence and trade, but the movement was very sluggish until February. In that month iron and steel producers made general and heavy reductions in prices; this so stimulated buying that by the first week in April some steel prices were restored. Wages were in many cases reduced. The inauguration of the new President in March aroused optimistic feeling, but this was largely offset by the beginning of the long controversy over the tariff (q. v.). Based on evidence of short supplies, small acreage and unfavorable crop conditions, the price of wheat rose extraordinarily during April and May, certain speculators in Chicago forcing it to \$1.51 per bushel late in May. The "commodities clause" decision of the Supreme Court, permitting railroads to own coal fields, gave an upward stimulus to the stock market (see RAILROADS). In June it became clear to the business interests of the country that the tariff schedules would be revised with the least possible disturbance of industrial conditions. This, together with favorable crop reports in early June, the great boom in building operations during the second quarter (see below), the easy money market based on immense bank deposits, general optimism, and the necessity of filling the voids in the markets due to months of restricted output and a reviving demand, resulted in a great upward surge in all lines of business about the middle of the year.

The tariff revision was completed early in August. Before the close of that month the United States Steel Corporation on the basis of increased earnings and unfilled orders raised the dividend on its common stock from 2 to 3 per cent. The prices of securities generally were greatly advanced, reaching about the levels of 1906. The beginning of crop movement in August absorbed many previously idle cars; the heightened demand for the late fall and winter trade increased the demand for labor and tended to raise wages. The prices of food products, especially meats, continued high and even tended to advance (see PRICES). By October car shortages were reported for the first time in two years. The activity in iron and steel was very great during the closing months, the December output of pig-iron being 2,560,000 tons as compared with 1,740,000 tons in January. There was at the same time very unusual activity in the metal trades, the demand for skilled workmen greatly exceeding the supply. On the other hand the cotton trade was greatly retarded by the extraordinarily high price of raw cotton. On the basis of the final estimate of the government that the 1910-11 crop would equal only 10,088,000 bales, the price of middling upland cotton advanced to 15.2 cents per pound in November and to 16.15 cents in December. A short break in the stock market

followed the decision of the Circuit Court dissolving the Standard Oil Company (q. v.). The December holiday trade was remarkably voluminous, in many places exceeding the best years of the past. The report of the Department of Agriculture in December gave basis to the improved conditions, so far as these rested on the foundation of abundant crops, by estimating the aggregate value of the year's harvests at \$8,760,000,000, or about one billion dollars in excess of the previous record. That the volume of business in the last quarter was of record-breaking dimensions was shown by the bank clearings, which showed a daily average for the three months of \$548,000,000, as compared with \$460,000,000 for the first three months. Moreover, the aggregate dividend and interest payments to be made in January, 1910, by railroad, industrial and traction companies, banks and trust companies, the National government and Greater New York, as estimated by the *Journal of Commerce*, was \$202,022,000. This was fully 10 per cent. in excess of the similar disbursements in January, 1909. Dividends amounted to \$87,591,000 or 16 per cent. more than in January, 1909. During the year 120 corporations either increased or resumed dividend payments.

BANK CLEARINGS. The great revival of business during the year was clearly reflected in the increasing bank clearings. After January, which always shows extra large clearances, there was a perceptible and quite steady increase each month from 11,131 millions in February to 15,691 millions in December. Comparison shows that each month in 1909 had larger clearings than the corresponding month in 1908; the same is true for the last eight months of 1907, for the last seven months of 1906, and for all preceding months and years except March, 1905. The total clearings for the year were \$164,195,488,000, the largest in American history, contrasting to \$131,073,901,000 in 1908, \$143,991,528,000 in 1907, \$159,135,000,000 in 1906, and \$143,114,000,000 in 1905. Of the total, \$103,588,738,000 were credited to New York City, this sum being 30.6 per cent. larger than that city's clearings in 1908 and 18 per cent. larger than those in 1907, but about one per cent. smaller than the record of 1906. This New York figure is almost twice that for 1900. In the 103 cities outside of New York for which Bradstreet's gives returns, the clearings amounted to \$60,606,750,000, a new record maximum, a gain of 17 per cent. over 1908, of 7.1 per cent. over 1907 and of 11 per cent. over 1906. By geographical sections the percentage gains over 1908 were as follows: New England, 14.9; Middle, 29; Western, 14.4; Northwestern, 14.8; Southwestern, 22.3; Southern, 23.9; Far-Western, 20.5. Only four cities showed decreases from 1908 clearances, namely, Springfield, Mass., Scranton, Minneapolis, and Vicksburg. A few cities showed decreases from 1907 clearings and a few from those of 1906, otherwise new high records were everywhere established. The aggregate clearings at a few of the larger cities were: Boston, \$8,440,382,000; Philadelphia, \$7,021,756,000; Pittsburgh, \$2,361,076,000; Cincinnati, \$1,359,031,000; Chicago, \$1,781,843,000; Minneapolis, \$1,029,914,000; St. Louis, \$3,442,439,000; Kansas City, \$2,395,521,000; Baltimore, \$1,469,673,000; and San Francisco, \$1,071,206,000.

The foregoing comparisons should be dis-

counted for the increase in prices, before they become true indexes of the relative amounts of commercial transactions. (See PRICES.) The great crops of the year resulted in very heavy clearings at inland cities during the later months. This factor and the greater stability of business in general, with its increasing volume, led to most extraordinary totals for the last three months.

The Canadian clearings in 1909 aggregated \$5,191,507,000, this being a new maximum and a gain of 25.3 per cent. over 1908. The clearings at Montreal amounted to \$1,866,649,000; at Toronto, \$1,437,700,000; and at Winnipeg, \$770,649,000.

STOCKS AND BONDS. The year was one of the most notable in the stock market history, both for volume of business and for marked continuous upward movement in prices. The transactions in stocks exceeded those of all preceding years except 1906, 1905 and 1901. The total for the New York Stock Exchange, according to *The Journal of Commerce and Commercial Bulletin*, was 212,563,644 shares. The heaviest trading was done in the months of June, August, September and October. The low prices of the year were in very many cases made in February, but the upward movement began in March. This was strengthened by favorable crop reports in the early spring, by the Supreme Court decision interpreting the commodities clause of the Hepburn act in May and by the great crops assured by early summer. High railroad earnings leading to rising dividends resulted in a very rapid advance in railroad stocks in July and August, an advance checked by the death of Mr. Harriman in September. Many industrials reached their year's maximum in November, while the closing weeks witnessed extensive manipulations of the Rock Island group of stocks. The average price of twenty leading railroad stocks reach 134½ in August as against the low mark of 114 in February; they averaged about 120 in December, 1908, about 81 in November, 1907 and 138 in January, 1906. For twelve leading industrials the November maxima averaged 100½, as against 80 in February, 88 in November, 1908; 53 in November, 1907, and the high average record of 103 in January, 1906. The increase during 1909 in the market value of the stocks of nine leading railroads aggregated \$215,363,760; and that of the stocks of nine leading industrials, \$422,766,942; these figures express vividly the buoyancy of the investment and speculative markets during the year.

The par value of stocks listed on the New York Exchange during the year amounted to \$1,154,990,370, according to *The New York Times Annual Financial Review*. This amount was more than twice the average for twenty years and has been only once exceeded, in 1901, when the United States Steel Corporation was formed. The railroad stocks listed amounted to \$573,486,150, including \$152,665,800 of preferred stock of the National Railways of Mexico, \$92,898,000 Northern Pacific, \$80,000,000 Pennsylvania, \$75,000,000 Southern Pacific, \$100,000,000 Chicago, Milwaukee and St. Paul. The listings of industrial stocks aggregated \$361,033,300, including \$50,000,000 common and \$50,000,000 preferred of the American Smelting and Refining Company. Telegraph and telephone stocks to the amount of \$112,346,600 were listed, including \$75,518,800 of the American

Telephone and Telegraph Company. These listed stocks include some authorized during 1908, but do not include all stocks authorized during 1909. These latter, according to *The Journal of Commerce and Commercial Bulletin*, amounted to \$565,032,000 for railroads and to \$432,115,100 for industrials. Of these sums, respectively \$309,064,800 and \$301,607,400 were actually issued during the year. The later weeks of the year were marked by a weakening of the bond market and a strengthening of that for stocks, leading both railroads and industrial companies to convert bonded indebtedness and notes bearing fixed charges into the more speculative form of securities.

The par value of bonds sold on the New York Exchange aggregated \$1,311,874,700, an amount never before equaled, being 21 per cent. larger than the previous maximum established in 1908. The first half of the year supplied a remarkably good bond market, but with the increase in stock dividend rates and a general increase in money rates, the bond market weakened considerably, there being evidence of liquidation in bonds at the close of the year. The bonds listed on the New York Exchange during the year amounted to \$1,009,518,600, a sum equaled only in 1905. The total amount of bonds authorized during the year by railroads, traction companies, industrial and mining corporations, as compiled by *The Journal of Commerce and Commercial Bulletin*, was \$1,970,365,500. Of this vast sum, railroads authorized \$1,613,803,500, but issued only \$653,355,900. All of these sums exceeded corresponding figures for 1908. The year, like its predecessor, was characterized by extensive refunding and also payment of maturing obligations, these operations being largely responsible for the extensive authorizations. These bonds authorized by railroads included \$233,562,500 by the Atlantic Coast Line, \$175,000,000 by the Missouri Pacific, \$135,000,000 by the National Railways of Mexico, and \$75,000,000 by the Southern Pacific Company. Bonds authorized by industrial corporations aggregated \$356,562,000, of which \$322,181,000 were issued. Notes issued by railroads during the year amounted to only \$62,786,580, or less than one-fifth the note issue of the preceding year. Notes issued by industrial companies amounted to \$42,625,000, or about double those of 1908. Mention should be made also of \$88,000,000 of 3½ and 4 per cent. New York City corporated stocks listed during the year.

FAILURES (a) *Commercial.* *Bradstreet's* reported the number of business failures for 1909 as 11,864, a decrease of 15.5 per cent. from the number in 1908, though a larger number than in any other year since 1897. The failures were only .77 per cent. of the total number in business, a smaller rate than in all but five of the preceding twenty-eight years. The total liabilities, \$140,453,000, were less than one-half those of 1908 and considerably below the average for the past thirty years. The assets were \$69,408,000, the ratio of assets to liabilities, 49.4 per cent., being the lowest in seven years, and also below the thirty-year average. This low ratio is taken as an index of the absence of general financial strain, and as showing that the failures were real failures and not temporary suspensions due to bad general conditions.

By groups of States the failures show decreases in every section, both in number and in liabilities, in comparison with the preceding

year. The reductions in numbers were greatest in the Middle, Northwestern and Far-Western States, and least in New England. Likewise as to liabilities, there was a decrease from those of 1908 of 63 per cent. in the Middle States, 60 per cent. in the Northwestern, 46 per cent. in the Far West, 40 per cent. in the South, and only 19 per cent. in New England. These figures indicate a greater amount of financial strain in New England during the year than in other parts of the country. Nevertheless, the number of failures, and the total assets and liabilities were smaller in New England than in any recent year except 1906. Moreover the great decreases in the figures referring to the Middle, Northwestern, and other groups outside of New England are largely accounted for by the relatively high figures for these groups in 1908. Compared with the figures for years preceding 1907, those for New England show more stable results than those of any other group. In the Manhattan and the Bronx boroughs of New York City the failures (1420) were 30 per cent. fewer than those of 1908, but somewhat more numerous than those of the few years preceding 1908; but the assets (\$4,494,000), were only a twelfth of those of 1908, only one twenty-second of those of 1907, and smaller than in any other recent year; and the liabilities (\$22,283,000), were less than one-fourth those of 1908 and only about one-sixth those of 1907.

According to the statistics of R. G. Dun and Co., for the year ending November 30, 1909, the failures among manufacturing concerns numbered 3063, with liabilities amounting to \$64,232,000, or about one-half those of 1908; among general stores, 1555, with \$10,698,000; among groceries and markets, 2360, with \$9,200,000. Failures of brokers and transporters numbered 361, with liabilities of \$19,604,000, as compared with 609 with liabilities of \$41,065,000 in 1908.

(b) *Financial.* R. G. Dun and Co. reported the number of bank failures at 77, with aggregated liabilities of \$24,177,000, the comparative figures for 1908, in their record, being 188, with liabilities of \$127,544,000.

CANADA. The number of business failures in Canada and Newfoundland in 1909 was 1591, or 7 per cent. fewer than in 1908, but more than in other recent years. The liabilities were \$12,824,000 and the assets, \$6,242,000, these amounts being slightly below those of 1908 and 1905, but greater than those of 1907, 1906, and 1904.

NEW CORPORATIONS. The new incorporations formed during 1909 were greater in number than in any year of the previous decade, and therefore probably greater than ever before, according to *The Journal of Commerce and Commercial Bulletin*. The number in New York State was almost 12,000 for the year. Massachusetts, Delaware, New Jersey, and Illinois also chartered more companies than ever before, but Maine had a somewhat reduced business in this line. The aggregate capital of new companies formed in the Eastern States having at least \$1,000,000 each, was \$1,566,989,000; the total for the entire country was \$1,920,389,000. If to this be added the capital of companies having \$100,000 and over the total reaches \$2,465,500,000. The aggregate capital of the new companies exceeded that of 1907 or 1908, but was much less than that of 1906 or 1901.

BUILDING. According to reports to *Bradstreet's* from about 100 cities the total expenditures for building during 1909 was \$841,938,-

000, an increase of 37.3 per cent. over the total for 1908. The expenditures for the first quarter of 1909 showed an increase of 89.2 per cent. over those of the corresponding quarter of 1908; those of the second quarter an increase of 46 per cent.; those of the third quarter an increase of 28.6 per cent.; and those of the fourth quarter an increase of 5.4 per cent. over the corresponding quarter of the preceding year. The superiority of 1909 over 1908 thus decreased as the year advanced, partly owing to absolute decrease in building undertakings after the second quarter of 1909, and partly owing to the revival of business during the second half of 1909.

ENGLAND. The year was far from a normal one for English industries. While there was moderate prosperity in the iron and steel, the shipbuilding, and the woolen trades, the cotton trade was in a deplorable state, and many others marked time. The greatest single cause of disturbance was the budget controversy and its attendant agitation of protection as against free trade. The cotton industry had not recovered from the panic of 1907, partly owing to the undue expansion of mills during the speculative boom of 1905-7, and partly owing to the high price of cotton. This latter cause, together with the speculative fluctuations on the New York and New Orleans Cotton Exchanges, was largely responsible for the demoralization during 1909. The year was notable for the great changes in the rate of discount of the Bank of England and for the great amounts of money advanced by English bankers to New York stock speculators. See **BANKS AND BANKING.**

GERMANY. Conditions in Germany were on the whole quite comparable to those in the United States. There was very rapid recovery from the industrial depression of the preceding year, with all industries, except the electrical, running at somewhat less than full capacity. The rapid recovery was attended by the flotation of large amounts of new securities and by most unprecedented stock speculation. One notable feature of this was the absorption of a large amount of foreign securities. During the first nine months the foreign securities listed on the German exchanges or taken up by public subscriptions amounted to \$150,000,000, as compared with \$30,000,000 last year. The strength of Germany in international trade relations is shown by the fact that she absorbed these securities and during the same nine months received merchandise to the value of \$297,000,000 in excess of exports, without losing more than a negligible amount of gold. See **BANKS AND BANKING.**

FINLAND. A Grand Duchy on the Gulf of Bothnia, forming part of the Russian Empire. The capital is Helsingfors.

AREA, POPULATION, ETC. Area, 144,255 square miles, of which over 11 per cent. is under lakes. Population at the end of 1906, 2,933,850, of whom 2,523,049 were rural and 410,807 in towns. In 1907 the population was officially estimated at 2,925,300. The population included (1900) about 2,353,000 Finns, about 350,000 Swedes, and about 6000 Russians; Lutherans numbered about 2,062,000. The principal cities, with population in 1907, are: Helsingfors, 130,844; Abo, 46,637; Tammerfors, 43,696; Viborg, 33,175; Nikolostad, 19,532; Uleoborg, 18,398; Björneborg, 16,602. A relatively high standard

of education is maintained, and, except along the Russian border, there is very little illiteracy. The University of Helsingfors has over 2500 students.

PRODUCTION. The production in hectolitres of the leading crops in 1906 was: Potatoes, 7,200,347; oats, 6,911,854; rye, 4,203,125; barley, 1,911,347. At the end of 1906 live-stock numbered: Cattle, 1,476,525; sheep, 912,467; horses, 325,642; swine, 218,923; reindeer, 141,572; goats, 5674. The Crown forests in 1906 covered 12,871,986 hectares, giving occupation to nearly 24,000 workers and producing 3,259,000 cubic metres of timber; they yielded an income of 6,995,000 marks, nearly five times the cost of maintenance. In 1906 the production of iron ore in metric tons was 35,820; pig iron, 15,865; bar iron, 22,531. There were in 1906 8827 manufacturing establishments, employing 113,518 workers and turning out a product (exclusive of flour mills) valued at 439,478,000 marks. The leading manufacturing industries were wood, iron, and mechanical works, textiles, paper, leather, and chemicals.

COMMERCE AND COMMUNICATIONS. Imports and exports in 1907 were valued at 379,100,000 marks and 267,200,000 marks respectively; in 1908, 363,500,000 and 245,000,000. The principal imports in 1908 were, in millions of marks: Cereals, 88.6; machinery, 24.0; iron and iron manufactures, 20.1; minerals, 19.2; coffee, 14.2; cotton, 13.4; sugar, 12.2; chemicals, dyes, and colors, 12; cotton textiles, 7.1; yarn, 6.4; meats 6; tobacco, 5.9; hides and skins, 5.7. The principal exports were: Wood, 126.1; paper and wood pulp, 42.5; butter, 31.5; hides, skins, and leather, 7.9; fish, 4.9; wooden articles, 3.9; cotton textiles, 3.9. The trade by countries in 1907 and 1908 was as follows, in millions of marks:

Countries	1907		1908	
	Impts.	Expts.	Impts.	Expts.
Germany	111.2	72.5	146.0	25.7
Russia	152.9	30.8	99.0	67.7
Great Britain	45.6	84.3	46.6	81.6
Denmark	26.8	8.5	25.6	6.4
Sweden and Norway	19.8	9.8	20.7	2.5
Belgium and the Netherlands .....	...	...	12.1	21.8
France .....	...	...	4.6	21.7
Spain .....	...	...	3.1	7.1
Other countries ...	22.8	60.3	5.8	4.0

In 1908 there entered the ports 8659 vessels, of 2,585,312 tons (958,297 Finnish, 202,658 Russian, and 1,424,357 foreign); and cleared, 8681 vessels, of 2,554,876 tons (934,643 Finnish, 194,458 Russian, and 1,425,775 foreign). The merchant marine on January 1, 1909, consisted of 3160 vessels, of 383,205 tons (steamers, 441, of 68,649 tons). In January, 1909, there were 2142 miles of railway in operation, over nine-tenths being owned by the state. Post-offices in 1908 numbered 1850.

FINANCE. The Grand Duchy has its own financial and customs systems. The monetary unit is the mark, worth one franc, or 19.3 cents. Revenue and expenditure in 1907 amounted to 134,382,249 marks and 130,340,191 marks respectively; in 1908, 160,507,038 (including 24,722,561 extraordinary) and 167,993,796 (including 52,303,909 extraordinary) respectively. The principal sources of ordinary revenue in 1908 were: Customs, 48,333,238 marks; railways, 40,837,791; public lands and forests, 10,778,785;

excise, 9,357,964; indirect taxes, 6,263,639; posts, 6,240,000; stamps, 2,787,445. The leading branches of ordinary expenditure were: Communications, 43,817,219 marks; worship and public instruction, 15,668,431; civil administration, 12,459,738; public debt, 6,251,596. On January 1, 1909, the public debt stood at 152,083,543 marks.

GOVERNMENT. The Emperor of Russia is the Grand Duke, who summons and may dissolve the Diet. This body, which is unicameral, is chosen by direct proportional election, the suffrage being possessed by each citizen (with the usual exceptions) who has reached his or her twenty-fourth year. Every voting citizen is eligible to the Diet, to which at the first election, in 1907, 22 women were elected. The Diet, which lasts for three years, unless sooner dissolved, has power to enact legislation which does not affect the fundamental laws or the organization of land and sea defense. The Grand Duchy is included in the St. Petersburg military district. The executive, at the head of which are the Governor-General and the Russian Secretary of State for Finland, is responsible both to the Grand Duke and to the Diet. The Governor-General in 1909 was Gen. W. A. Boeckmann.

HISTORY. The first session of the Finnish Diet lasted less than a week. It was opened on February 18, but dissolved on February 22 by the Czar's order, because the speaker had disregarded the Czar's wish that he should confine himself to the expression of loyal sentiments when replying to the Czar's opening message. The speaker had referred to the regret on the part of the people that matters concerning Finland were reported to the Czar in a manner that did not conform to Finnish laws and that was injurious in its effects. The Russian press generally approved the dissolution for the reason that the Diet had objected to the proposed plan of submitting bills affecting Imperial interests to a joint preliminary consideration by the Secretary of State for Finland and the Council of Ministers. The next session, which assembled in June, was also dissolved by the Czar (November 26), having refused to pass the military grant. See RUSSIA, paragraphs on *History*.

FINLEY, MARTHA. An American writer, died January 30, 1909. She was born at Chillicothe, Ohio, in 1828. Under the pen-name "Martha Farquharson" she published in 1868 the first of the "Elsie Dinsmore" books. This was so successful that it was followed by twenty-two "Elsie" books, the last, *Elsie and Her Namesakes*, in 1905. These books are among the most widely read books for girls ever written. Miss Finley was the author also of a series of juvenile stories called the "Mildred" series.

FIRE INSURANCE. See FIRE PROTECTION.

FIRE LOSSES. See FIRE PROTECTION.

FIRE PROTECTION. The successful use of New York's high-pressure system, whose installation in Brooklyn and the lower part of Manhattan was so marked a feature of the developments in this field during 1908, continued in 1909, and attracted even greater attention to fire protection from a central pumping station by means of independent high-pressure mains and hydrants. Early in the year the Manhattan system received a most thorough

test in the occurrence of three large fires almost simultaneously, and these were successfully extinguished without the use of engines. Previously the hose wagons had been given right of way over the engines in responding to alarms, but the latter always accompanied the firemen for use in case of failure of the high pressure or other emergency. So successful and reliable did the high pressure show itself that during the year 1909 orders were issued relieving the engines from responding to alarms in the high-pressure district save under exceptional circumstances, and the hose wagons, carrying the high-pressure hose with the water tower and ladder trucks, comprised the mobile equipment. The New York Fire Department during the year employed in connection with the high-pressure service a powerful gasoline automobile hose wagon, which more than met expectations and was considered to be the beginning of an extensive use of automobile apparatus in that conservative, but efficient, department. This machine received a thorough test over all conditions of pavement and in all kinds of weather. It was found able to develop speeds up to forty miles an hour, and in a year of service did not fail once in answering an alarm.

In the extension of the service on the East Side an interesting improvement planned by the Department of Water Supply, Gas and Electricity, was introduced which greatly increases the efficiency of the system and especially its reliability. In laying the mains in this new territory it was decided to install them on two independent systems, interconnecting, however, at certain points where electrically controlled valves were located. The mains of each system to which the hydrants were connected were to be laid normally in alternate streets. Ordinarily, there would be a hydrant in close proximity to any possible scene of fire and abundant water would be forthcoming as soon as the alarm was turned in and the electrically driven pumps at the central stations were started. But should there be a failure of a main due to breakage, then the efficiency of the entire system is impaired, and this is not a remote possibility in New York, where excavations of the streets, made often by irresponsible workmen, may weaken the mains. In fact such an occurrence actually took place in 1908 when a failure of an improperly supported and protected pipe occurred in a subway excavation. The improved system planned provided for electrically controlled valves whereby one-half the system can be instantly closed down, instead of requiring from one-quarter to half an hour to operate the hand valves of the older system. Now, as it was provided in the arrangement of hydrants to have these so spaced that one of either system was always within a short distance of any possible fire, at the worst the use of a few extra lengths of hose would be all that would be required. This innovation was believed to more than double the efficiency of the new extension, the actual construction of which was begun during the year.

A beginning was made in San Francisco with the high-pressure system, and in Chicago, where need of such protection seemed to be evident, an extensive report was prepared by the city engineer in which the work of other cities in this field was shown. In fact, it seemed to be proved by New York's experience, as stated by Chief Croker, that with the high pressure and the

well-organized fire department any fire could be confined to the building of its origin and the damage of conflagration practically removed.

The use of motor-operated and propelled fire apparatus during 1909 increased, and it was apparent that it had passed the experimental stage. These automobile engines consist of gasoline pumps of moderate capacity mounted on motor-driven vehicles capable of a speed up to 40 miles an hour, and carrying a supply of hose. They are always in readiness and can be dispatched at high speed to any point of an alarm much more quickly than horse-driven apparatus. A number of these machines were introduced into the fire departments of various American cities and have proved successful. In fact in some cities it is believed that increased protection and economy can be secured by having double companies in a single fire house, and trusting to the speed of the motors to reach the fire in season. Automobile ladder trucks were also meeting with favor and were purchased by a number of departments. In these a four-wheeled high-power motor takes the place of the ordinary front wheels, thus making a six-wheeled vehicle. Not only is the motor powerful enough to secure the requisite speed, but the arrangement has been found to be as readily controlled and steered as the ordinary truck, and affords a stable base for the extension ladders. There were also in use motor vehicles for salvage and emergency corps, chemical engines, hose and combination wagons, not to mention high-speed cars for chiefs and supervising officers, all of which showed increased use and great improvement during the year. In many cities attention was being paid to water supplies and alarm systems, and in New York a study of the much-needed replacement of its obsolete telegraph alarm system was undertaken. It was found necessary to recommend a complete new system with a central station removed from the present non-fireproof Fire Headquarters, and an independent isolated building located at some such central point as in Central Park was considered desirable.

The fire losses for the year according to *The Journal of Commerce and Commercial Bulletin* (New York) amounted to \$203,649,200. This shows, however, a reduction of some thirty-five million dollars from the record of the year 1908 and is considerably over fifty millions below the average for the five years ending with 1909, which was high, owing to the fact that the San Francisco conflagration losses of 1906 are included therein. As compared with the fire losses of 1908, which aggregated \$238,562,250, the record for 1909 showed a steady decline in the value of property burned throughout the entire year.

The relative increase in the average annual fire loss when compared with the increase in the estimated aggregate wealth of the country would seem to indicate that the fire waste was very excessive. The average annual fire loss for the five years 1877 to 1882 was \$76,489,600, whereas the average yearly fire loss for the five years ending with 1909 was \$257,827,475, showing an increase of 337 per cent. On the other hand, taking the estimates of the Bureau of Statistics, the aggregate wealth of the country in 1909 was \$107,104,000,000, as compared with \$42,642,000,000 estimated wealth in 1880, or an increase in the thirty years of 251 per cent. Thus it would appear that the ratio of increase in fire

waste had far outstripped the ratio of increase in the wealth of the nation.

The fire losses in this country and Canada during the past thirty-three years aggregate the appalling sum of \$4,712,537,525, showing an average of \$142,804,000 per annum.

There were during the year 1909 some 3270 fires, where the loss in each instance reached or exceeded \$10,000, a number decidedly less than was credited against any of the four years previous, and by some insurance authorities this fact is believed to mark, not only better business conditions, but a more active realization of the tremendous waste occasioned by fires due in large part to improper conditions of buildings and maintenance. Classified according to their destructiveness the fires of 1909 and seven preceding years show the following results:

	\$10,000 to \$30,000	\$30,000 to \$50,000	\$50,000 to \$75,000	\$75,000 to \$100,000	\$100,000 to \$200,000	\$200,000 and over	Totals
1909.....	1,128	570	457	444	174	337	3,273
1908.....	1,644	754	587	407	102	330	4,068
1907.....	1,671	764	547	429	200	299	4,073
1906.....	1,899	663	477	360	163	252	3,459
1905.....	1,926	657	502	367	152	258	3,363
1904.....	1,180	595	428	328	173	323	3,106
1903.....	1,040	493	381	380	171	218	2,690
1902.....	821	468	335	343	135	210	2,400

During 1909 there were twenty-six instances where a loss of \$500,000 or more was caused. These fires were as follows:

New York City, wholesale grocery and other	\$ 630,000
Boston, Mass., automobile warehouse and repair plant	750,000
North Chelmsford, Mass., worsted mills	500,000
Toledo, Ohio, business block	500,000
Galveston, Tex., wharf and cotton	500,000
Jersey City, N. J., railroad piers and lighters	800,000
Fort Worth, Tex., various	800,000
Chicago, Ill., grain elevator	1,000,000
Akron, Ohio, business block	500,000
Fresno, Cal., fruit packing plant	500,000
Port Costa, Cal., grain docks	1,000,000
Saskatchewan, Canada, forest fires	700,000
Tonopah, Nev., railroad repair shop	500,000
Monticello, N. Y., hotels and business houses	800,000
Decatur, Ill., several business blocks	1,000,000
Pittsburg, Pa., storage warehouse	500,000
Toronto, Ont., Parliament buildings	500,000
Poplar Bluffs, Mo., hotel and stores	500,000
Narragansett Pier, R. I., dwellings	1,000,000
Quebec, Que., grain elevator and docks	1,200,000
Dayton, Ohio, scale factory and other	550,000
White Plains, N. Y., dwellings	500,000
Baltimore, Md., several business houses	575,000
Kalamazoo, Mich., hotel and business blk	750,000
Racine, Wis., automobile top factory and other	650,000
Crystal River, Fla., pencil factory and other	500,000

FISH AND FISHERIES. In June, 1909, Dr. F. B. Sumner, Director of the laboratory of the U. S. Bureau of Fisheries at Woods Hole, Mass., reported on the work of the preceding summer, and published announcements for the season of 1909. Eighteen salaried investigators were at the laboratory during the season of 1908, and thirteen worked without

salary. A biological survey of the Woods Hole region begun some years earlier would, it was expected, be completed by the end of 1909. The report of the survey up to the time Dr. Sumner's report was written, recorded over 1400 species of animals and over 250 of plants in this region. The hawksbill turtle had recently been caught in the vicinity of Woods Hole, an occurrence which seems not to have been mentioned earlier. Work at this laboratory was continued during the season of 1909, a large number of investigators being present. In order that Director Sumner might have leisure to finish several pieces of unfinished work, Dr. Raymond C. Osburn was Acting Director for the season.

It was reported during the year that Horace Knowles, United States Minister to Rumania, was proposing to send a carload of Black Sea sturgeon to the United States, to attempt the re-introduction of these into Atlantic Coast rivers, where they are practically extinct.

United States Bureau of Fisheries Document No. 644, published in 1909, deals with the distribution of fish and fish eggs by the Bureau in 1908. The Bureau has adopted a uniform classification of young fish as to size as follows:

Fry —, up to the time yolk sac is absorbed.

Advanced fry —, from fry up to one inch.

Fingerling —, 1 inch to yearling stage.

Yearling —, one year old, but less than two.

In 1908, 2,413,809,225 young fish were distributed for public and private use in the United States, and 457,647,055 eggs sent to State and foreign hatcheries. The report contains further details of work done by all the hatcheries under the supervision of the Bureau. United States Bureau of Fisheries Document No. 645 summarizes the results of the Alaska fisheries in 1908. The salmon season was, on the whole, a prosperous one, the value of the output for the year being \$10,185,783. Detailed statistics for the various fisheries are given in the report. Some violations of the fishery laws were prosecuted and convictions obtained.

For the purpose of getting an estimate of the number of salmon ascending a single river, a contrivance was erected on Wood River, by which the fish could be counted as they came in, giving an estimated number of 2,600,000. Alaska codfish was reported as getting a foothold in Eastern markets, the value of the product for 1908 having been \$133,915. The value of the halibut catch was \$174,542, and that of herring \$23,650. The whale industry in Alaska is of considerable importance, but no data were given to show its value in 1908.

At the newly established biological station of the United States Bureau of Fisheries at Fairport, Iowa (see BIOLOGICAL STATIONS), an especial study is being made of methods for the artificial propagation of the fresh-water mussel. The shells are used in the manufacture of pearl buttons, over 50,000 tons of shells, with an output worth \$6,000,000 annually, being used for this purpose. The industry centres at Muscatine and Davenport, Iowa, between which cities the new station is situated.

The Report of the North Sea Fisheries Investigation Committee, for the year, may be summarised: 1. In legislation requiring the return to the water of all fish below a certain size, it is important to know how much the fish may have been injured by the process of catching. Experiments show that the otter trawl

causes much more injury to the fish than the beam trawl. 2. The age of the plaice can be determined by counting the concentric rings on the otoliths. Using this as a method of estimating age, Dr. Wallace has demonstrated that the fish may reach sexual maturity at different ages in different localities.

Dr. J. Stoford, working in 1904 at Malpeque, Prince Edward Island, reported in 1909 the results of observations on the young oysters. Previous workers had studied the oyster embryo up to the veliger stage, and from the "spat" condition to the adult. Between these there has been a gap, which Stoford's investigations seem to have bridged. By a study of the plankton he was able to recognize the oyster, and able to follow its later stages from plankton material. The free swimming period lasts, he thinks, about a month, fixation occurring when it is about 0.38 mm. long. Of importance is the discovery of a foot in the young oyster, which is lost after the "spat" period begins.

E. J. Allen thinks that there is a close correlation between the number of hours of bright sunlight during the first quarter of the year and the size of the mackerel catch on the English coast. Data collected for years from 1902 to 1908 apparently lead to this conclusion. This is because bright sunlight during February and March increase the number of diatoms in the water, thus producing an increase in the food of copepods, and thus indirectly increasing the amount of the mackerel food.

FISHER, GEORGE PARK. An American theologian and historian, died December 20, 1909. He was born in Wrentham, Mass., in 1827, and graduated from Brown University in 1847. He studied theology at Yale Divinity School and at Andover Theological Seminary, and in Germany. In 1861 he was chosen professor of ecclesiastical history at Yale, and held this position until 1902, when he retired as professor emeritus. He was a voluminous writer, and among his published works were: *The Supernatural Origin of Christianity* (1865); *Life of Benjamin Silliman* (1866); *History of the Reformation* (1873); *The Beginnings of Christianity* (1877); *Faith and Rationalism* (1879); *The Outlines of Universal History* (1885); *History of the Christian Church* (1888); *Colonial History of the United States* (1892); *History of Christian Doctrine* (1896); *Brief History of the United States* (1896); *Edwards on the Trinity* (1903). He contributed also many articles to theological and general reviews.

FITCH, CLYDE WILLIAM. An American dramatist, died September 4, 1909. He was born in New York City in 1865, and graduated from Amherst College in 1886. During his college course he wrote several stories and short plays, and became locally famous in the delineation of female parts in the college theatricals. His plans for his life work were for either interior decoration or architecture. While he was debating between the two, he wrote several stories and a one-act play, *Betty's Finish*, which was produced in Boston, and ran for two months. At this time Richard Mansfield was seeking for a play with Beau Brummel as the leading character. Mr. Fitch was recommended to him, and the play was written and produced in 1890 as *Beau Brummel*. It was an instant success, and at once established Fitch as a playwright.

Mr. Mansfield appeared in this part over 1000 times, and it remained one of the favorites in his repertoire. Following this success Fitch went abroad and made a study of French drama and the French stage. Plays came from his hand thereafter with a rapidity which occasioned considerable criticism. In 1901 four of his plays were at one time running in New York theatres. Mr. Fitch answered his critics by declaring that many of the plays written with such apparent rapidity had really been composed years before, in a period when managers would not produce them. *Beau Brummel* was followed by *A Modern Match*, and this by a steady succession of plays, for the most part successful, until the time of his death. He wrote many plays to suit individual stars; among them were *His Grace De Grammont* for Mme. Modjeska; *Nathan Hale* for N. C. Goodwin and Maxine Elliott; *Barbara Fritchie* for Julia Marlowe; *The Girl and the Judge* for Annie Russell; *The Stubbornness of Geraldine* for Mary Manning; and *The Toast of the Town* for Viola Allen. Among the best of his later plays was *The Girl with Green Eyes*, in which the late Clara Bloodgood appeared in the title rôle. He also adopted many plays from foreign languages. The best known of them were, perhaps, *Sappho*, *A Superfluous Husband*, and *The Marriage Game*. Mr. Fitch's plays dealt chiefly with contemporaneous American life. They were designed to entertain, and, for the most part, did so. They were constructed with great skill, for Mr. Fitch was a master of stagecraft. He concerned himself but little with "problems," but his *Climbers* will probably live as one of the keenest satires on American social life yet written. Although his work showed an advance in technical skill, and perhaps in seriousness, in his later plays, it is the opinion of many critics that *Beau Brummel* remained his best play. His last work, *The City*, a serious play, produced after his death, has been much praised for its dramatic force.

Besides the works mentioned above, Mr. Fitch wrote two books of fiction, *Some Correspondence* and *Six Conversations*, and *The Smart Set*. Several of his plays were published in book form.

FITZGIBBON. GERALD. An Irish jurist, died October 14, 1909. He was born in Dublin in 1837 and was educated at Trinity College, Dublin. He was admitted to the Irish bar in 1860 and the English bar in 1861. In 1872 he was made Queen's Counsel. In 1876 he was law adviser at Dublin Castle, and in 1877-8 was Solicitor-General of Ireland. From 1884 to 1896 he was Commissioner of National Education for Ireland and from 1885 to 1897 was Judicial Commissioner of the Educational Endowments. He was made Chief Justice of Appeal in 1898 and continued in this position until his death. Judge Fitzgibbon was a profound lawyer, a man of wide and varied learning, and was well known for his unswerving rectitude and conspicuous fairness.

FLAGLER, ISAAC VAN VLECK. An American musician, died March 16, 1909. He was born in Albany, N. Y., in 1848. He early showed talent as an organist, and was well known locally when he went to Paris and Germany to study music. On his return to the United States he was organist at Plymouth

Church, Chicago, organist and musical lecturer at the Chautauqua Assembly, Chautauqua, N. Y. For several years he taught music at Syracuse and Cornell universities and at the Utica Conservatory of Music. He was one of the founders of the American Guild of Organists. At the time of his death and for several years previous he was organist of the First Presbyterian Church at Auburn, N. Y. He composed several pieces of music and edited several collections. The most popular of his organ compositions is *Variations on an American Air*.

FLAX. In speaking of the flax crop of the United States, the flaxseed crop is always meant, as the flax fibre produced is a negligible quantity. The total production of flaxseed in 1909, according to the Department of Agriculture, was 25,856,000 bushels, the area devoted to the crop 2,742,000 acres, the average yield per acre 9.4 bushels and the total farm value on December 1, \$39,466,000. During the last few years the flaxseed production of the country has not varied much, but in general it has declined since 1902. The high price of the seed, which was 152.6 cents per bushel on December 1, brings the total value of this year's crop about 40 per cent. over the average of the previous five years. The growing of flax for seed is limited to about ten States, and about one-half of the total annual yield is produced in North Dakota. In 1909 North Dakota raised 14,229,000 bushels on 1,530,000 acres, the total value being \$22,340,000. South Dakota ranked second, with 5,640,000 bushels on 600,000 acres, valued at \$8,516,000, and Minnesota third, with 4,500,000 bushels on 450,000 acres, the crop representing a value of \$6,750,000. The other States producing flaxseed were Kansas, Wisconsin, Iowa, Missouri, Montana, Nebraska and Oklahoma, given in the diminishing order of crop values.

FLORENCE CRITTENTON MISSION.
See CRITTENTON, CHARLES N.

FLORIDA. The Southernmost State of the American Union. Its total area is 56,666 square miles, of which 3085 square miles are water. Its population in 1900 was 528,542. According to a Federal estimate made in 1909 the population in that year was 679,742. The capital is Tallahassee.

MINERAL PRODUCTION. The chief mineral product of Florida is phosphate. In 1908 there were produced 1,692,102 long tons of phosphate rock, valued at \$8,484,539, as compared with 1,357,365 long tons in 1907, valued at \$6,577,757. The industry has greatly grown since 1888, when the first shipment of pebble phosphate was made from Peace River. In 1889 hard rock phosphate was discovered in Marion County, and in 1890 the land pebble area was opened in Polk County. The production has shown an increase almost without exception each year since its beginning. The clay products are also important in the State. In 1908 they were valued at \$233,162, a considerable decrease over the product of 1907, which was valued at \$354,575. The clay mined includes plastic, kaolin, and brick-making clays. Mineral water was produced in 1908 to the value of \$20,569 from 123,552 gallons. There was a quantity of road-making materials mined including flint, chert, and road-making clays. The value of the mineral products of the State for

1908 was \$9,167,762, as compared with a value of the product of 1907 of \$7,365,754.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops of the State in 1909 were as follows, according to figures of the United States Department of Agriculture: Corn, 8,379,000 bushels, valued at \$6,955,000, from 665,000 acres; oats, 527,000 bushels, valued at \$395,000, from 31,000 acres; rice, 25,000 bushels, valued at \$20,000, from 1000 acres; potatoes, 475,000 bushels, valued at \$570,000, from 5000 acres; hay, 26,000 tons, valued at \$1,390,000, from 19,000 acres; tobacco, 3,195,000 pounds, valued at \$1,086,300, from 4500 acres. The cotton crop for 1909-10 was estimated at 57,000 bales. The production has steadily fallen from 1904, when the crop was 80,551. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 55,000; mules, 21,000; dairy cows, 95,000; other cattle, 712,000; sheep, 98,000; swine, 456,000. The number of horses and all classes of cattle has increased considerably in the last few years. The wool clipped in 1909 was 250,480 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$3,388,690. Of these products the most important in value was mullet, of which 24,716,300 pounds, valued at \$652,030, were taken. Next in order of rank was sponges, of which 622,500 pounds, valued at \$544,880, were taken. Shad was caught to the number of 2,836,200 pounds, valued at \$319,800; red snapper, 7,718,900 pounds, valued at \$434,060; Spanish mackerel, 2,647,400 pounds, valued at \$122,330; squetengue or trout, 4,864,100 pounds, valued at \$196,350; prawns, 4,151,900 pounds, valued at \$84,280; terrapin and turtle, 183,700 pounds, valued at \$22,110. Among other important fishes taken were black bass, bluefish, bream or sunfish, catfish, channel bass or redfish, crevalle, and sailer's choice. Oysters were taken to the amount of 1,066,800 bushels, valued at \$296,040. The alligator hides taken during the year numbered 50,900 and were valued at \$48,230. The total number of independent fishermen in the State was 3288, and the wage-earning fishermen numbered 5924. There were employed 327 vessels, valued at \$618,674.

EDUCATION. The total school population of the State is estimated by the Superintendent of Public Instruction in his biennial report for the two years ending June 30, 1908, at 224,667, while the total enrollment of all pupils of all the public schools for the same period was 134,722, only about 60 per cent. of the children of legal school age. Of the children enrolled, only about 70 per cent., or 94,897, were in average daily attendance. The average monthly salary of teachers was \$44.69 for a term of 5.4 months. The State has no compulsory attendance law, although attempts have been made to pass such a law through the legislature for several years. The legislature of 1907 passed a law regulating the salaries of county superintendents of public instruction, and established a graduated system of salaries ranging from \$600 a year as a minimum to \$2400. This measure has been found valuable in securing the services of competent men.

POLITICS AND GOVERNMENT. On April 26, Duncan U. Fletcher, who had been elected United States Senator at the primaries in 1908,

took his seat in the Senate. On April 22 the State Senate passed, by a vote of 24 to 7, the bill for the submission at the general election in November, 1910, of a State-wide Prohibition amendment, and on April 23 the House adopted the bill by a large majority. An amendment to the Constitution, relating to suffrage, known as the Beard Disenfranchisement Resolution, was on May 8 defeated in the House of Representatives. This resolution, which passed the Senate, contained the following clause: "Every male person of the age of 21 years and upwards who shall at the time of registration be a citizen of the United States," etc., "shall be deemed a qualified elector at all elections under this constitution." This act was in direct conflict to the Fifteenth Amendment to the Federal Constitution. The principal opposition to the amendment came from the Prohibition forces, who were strongly opposed to the submitting of this measure to the people at the same time as the State-wide Prohibition resolution. On June 11 the Governor signed the bill prohibiting race-track gambling in the State, but this act was not to go into effect until April, 1911, and, as there would be another session of the legislature before that date, the race track people had strong hopes that the act would be repealed before it became effective.

OTHER EVENTS. On October 11 a hurricane did great damage along the southern coast of the State, partially wrecking the city of Key West and doing damage to property to the amount of \$2,000,000. Martial law was proclaimed by the mayor of the city and United States troops were asked for to assist in patrol work. Nine large cigar factories, two fire stations, five churches and many blocks of residences and stores were destroyed. Six persons were killed and many others injured.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: Acts were passed regulating the practice of osteopathy, optometry, and dentistry. The Board of Health was authorized to enforce rules for the protection of the public health and to establish and maintain sanitariums for the treatment of tuberculosis. Provision was made for fire protection in public schools and for the teaching of the elementary principles of agriculture and civil government. The drinking of liquor on trains was prohibited and also the sale of certain narcotics. A pure food law was enacted, together with laws for the suppression of contagious diseases in livestock and to prevent the pollution of water. Measures were enacted regulating the fire insurance companies and penalizing railroad companies for delay in settling claims. The laws relating to elections were amended to prevent corrupt practices.

OFFICERS. Governor, Albert W. Gilchrist; Secretary of State, H. C. Crawford; Treasurer, W. V. Knott; Comptroller, A. C. Croom; Attorney-General, Park M. Trammell; Auditor, Ernest Amos; Adjutant-General, J. C. R. Foster; Superintendent of Public Instruction, W. M. Holloway; Commissioner of Agriculture, B. E. McLin—all Democrats.

Judiciary—Supreme Court: Chief Justice, J. B. Whitfield; Justices, W. A. Hocker, R. F. Taylor, T. M. Shackelford, Chas. B. Parkhill and R. S. Cockrell; Clerk, Milton H. Mabry—all Democrats.

The State Legislature of 1909 was composed of 32 Democrats in the Senate and 68 Democrats and 1 Socialist in the House. The State Representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

FOLK LOBE SOCIETY, AMERICAN. See ANTHROPOLOGY.

FOOD AND NUTRITION. FOOD INSPECTION. Efforts to check the adulteration and sophistication of food and drug products were continued in most civilized countries during 1909, to the steady improvement of the quality of these products and of the sanitary conditions under which they are prepared. In the United States, approximately 10,000 samples of foods and drugs collected in inter-State traffic and about 8500 samples of imported goods were analyzed under the National Food and Drugs act of June 30, 1906, and there were reported to the respective district attorneys for prosecution 494 cases, 359 more than the year preceding. Of the cases decided during the year, 85 resulted in convictions and fines, and 98 in decrees of condemnation and forfeiture of goods, whereas but 2 cases were lost by the government. Many of the cases successfully prosecuted were with reference to the adulteration of the milk supplied to several of the larger cities from near-by States, and led to a material purification of the milk supply. Substantial progress was also made in the exclusion from inter-State commerce of a number of the more pernicious nostrums and habit-forming drugs, and in the improvement of the quality of flavoring extracts. Only 44 violations of the national meat inspection law were prosecuted, of which 15 of those decided resulted in convictions.

Much attention was given to the formulation of food standards, a matter largely delegated by the law to the Secretaries of Agriculture, Treasury, and Commerce and Labor. Following a report of investigation conducted by the Referee Board of Consulting Experts, a body appointed by President Roosevelt in 1908 to consider important matters in controversy, in which healthy young men were used as subjects for a period of four months in experiments to test the effect of benzoate of soda on nutrition and health, a decision was announced whereby the use of this substance is now allowed, provided the amount used is stated on the container or package. Similar questions with reference to the use of sulphur dioxide, saccharin and copper sulphate were pending before the Referee Board at the close of the year. The importation of canned vegetables greened with copper salts was again permitted under certain restrictions. A decision as to the branding of whisky was rendered by President Taft, December 27, 1909, under which this term, which had previously been restricted to "straight whisky," is extended to include blends and goods made from rectified, distilled or neutral spirits, provided the source and process are indicated on the label. Under a decision promulgated by the Secretary of Agriculture, flour bleached by nitrogen peroxide has been declared adulterated since June 10, 1909. Other decisions of the year dealt with the labeling of turpentine, canned salmon and whitefish, and of wines, and with the importation of damaged coffee and the preparation and shipment of shellfish.

Most of the States also showed much activity in pure food matters. Nearly every State in which the legislature was in session amended its laws as to the manufacture and sale of food products, and in many States additional regulation and rulings were promulgated under existing laws. In a general way the trend was in the direction of uniformity with the National Food and Drugs act, particularly as regards standards, though there is still great diversity in requirements. At the close of the year, twenty-two States had adopted the Federal standards, and five of these States had also adopted the additional standards promulgated by the joint committee of the Association of Official Agricultural Chemists and the Association of State and National Food and Dairy Departments. In three other States the laws essentially prescribed the Federal standards. Alabama adopted a new law, which went into effect January 1, 1910, and among the other States making extensive alterations were California, Idaho, Illinois, Indiana, Louisiana, Maine, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, Wisconsin, and Wyoming. A noteworthy feature of many of the new laws was the increased insistence upon satisfactory sanitary conditions in factories, bakeries, dairies, restaurants, and other places where food products are prepared and sold. California, Indiana, Louisiana, New Jersey, North Dakota, Ohio, Tennessee, and Wisconsin gave particular attention to this phase in their new legislation, and there were many indications of an awakening of the general public to the need of greater stringency in such matters.

Outside the United States but little new food legislation was enacted, most of the civilized nations already possessing fairly effective laws. In Switzerland a new law went into operation July 1, 1909, in which special prominence is given to the inspection of imported food products. Hungary prohibited the manufacture and sale of adulterated wines, and in Denmark new regulations as to meats for export went into effect. Holland enacted a new law for dairy products, and France extended its pure food laws to Algeria.

The Second International Congress for the Repression of Adulteration of Alimentary and Pharmaceutical Products was held in Paris, October 17-24, 1909, with over 2000 delegates and visitors, representing twenty-eight nations and all parts of the world. The Congress completed the work of its predecessor at Geneva in 1908 as to formulating definitions of standard food and drug products for adoption as an international "codex alimentarius," with a view to securing greater uniformity in the work of food control. Much attention to food and nutrition problems, including food and drug inspection, was also given at the seventh triennial session of the International Congress of Applied Chemistry, which convened in London from May 27 to June 2.

PROGRESS IN FOOD AND NUTRITION STUDIES. Popular interest in food problems as related to national health and efficiency was well sustained throughout the year in the United States, where special impetus was given by the activities of the voluntary Committee of One

Hundred, the newly organized American Association of Home Economics, President Roosevelt's Homes Commission, which dealt more especially with sociological conditions in the District of Columbia, his Commission on Country Life, and other organizations. The recommendation of President Roosevelt in 1908 for the establishment of a Federal bureau of health, into which should be consolidated the various existing Federal agencies, such as the Food, Drug and Meat Inspection Service, and the Public Health and Marine Hospital Service was repeated by President Taft in his first annual message in December.

The nutrition laboratory of the United States Department of Agriculture was completed by the installation of the remodeled respiration calorimeter formerly at Wesleyan University, thereby permitting of the resumption of fundamental studies dealing with the metabolism of matter and energy, as well as of the utilization as food of agricultural products. A bulletin of the department was issued reporting experiments in which mental work was not found to exercise any appreciable effect on metabolism. The efficiency of the human body as a machine was calculated to be about 20 per cent., this being in accord with earlier studies. Other respiration calorimeter investigations were reported from the nutrition research laboratory at Boston of the Carnegie Institution, among these being studies of metabolism during fever and of the energy involved in typewriting. A small portable apparatus was devised at this laboratory for use in respiration experiments.

Several studies of the food habits and customs of native peoples were reported, chiefly dealing with conditions in the Orient, especially the Philippines, where it was found that the native diet is composed largely of fish, beans, rice, and fruit, and supplies substantially the same amount of protein and energy as the average American or European diet. Considerable attention was also given to the diet of children, notably in schools and charitable institutions, as well as to aged persons and people living in rural regions. Discussion as to the kind and amount of protein best adapted to the body's needs was continued. One of the more important contributions was by Rubner, who holds that the long continued use of a diet of low nutritive value and composed largely of vegetable foods, such as is commonly met with among the poor in Europe, is largely responsible for defective physical condition, decreased ability for work, an increase of morbidity and mortality, a lowered resistance to specific diseases, and similar undesirable results. Much attention was also given by investigators to the ash or mineral matter requirements of the body, especially the phosphorus metabolism.

A large amount of analytical and other miscellaneous data was reported as to various foods and related problems. Some of the more important topics dealt with were the composition of Hawaiian honeys, meat extracts, tinned foods, fish of various sorts, eggs, tea, coffee and cocoa, the ripening of dates, the milling of wheats and baking tests of flours, the influence of corn on pellagra and of rice on beriberi, the effect of cold storage on meats, the canning and preserving of foods by both commercial and domestic methods, and tests of fireless cookers and other household appliances.

COST OF FOOD. Despite the increased production of nearly every food crop, both wholesale and retail prices of food, as of most other commodities, continued to advance in most countries during the year. More attention than usual was given to studies bearing on this subject. One of these was a comprehensive investigation of the standard of living in New York City, from which the general conclusion was drawn that in that city, when less than 22 cents per man per day is spent for food, the nourishment derived is insufficient. Important studies were also conducted by the British government into the cost of living of the working classes in England, Ireland, France, and Germany.

Data compiled by the United States Department of Agriculture indicated that the increase in prices in this country since 1896 has been specially marked in farm products, the average price at the farm for these being 141.9 per cent. in excess of that in 1896, as compared with 126.4 per cent. for all commodities. An investigation as to meats, in particular, revealed that although the farm price for beef cattle has barely begun to rise above the level for 1896-1900, the retail prices for beef products, and all prices for other meats, have shown notable increases. Among the causes assigned for this are the diminished range areas, the high prices for grain, a disposition on the part of the consumer to buy only the more expensive cuts, and in the cities the multiplication of small stores and the growth of the costly delivery system. Studies of retail profits on beef in fifty of the larger cities showed an average of 38 per cent. gross profit in retailing, but in twelve of these it was 41-50 per cent. and in eleven over 50 per cent. As a result of the prevailing conditions the per capita consumption of meat in this country, which seventy years ago was about one-half the entire dietary, has declined to about one-third, and this has been accompanied by an increased per capita consumption of cereals, vegetables, fruits, and saccharine foods. These foods are likewise increasing in cost, however. On November 1, 1909, the wholesale prices of fifty-nine commodities were estimated by *Bradstreet's* as having advanced over the preceding twelve months, seventeen were unchanged, and thirty had declined. Among the striking increases were flour, milk, eggs, butter, and cheese.

Such data as are available for other countries indicate that the increase in food prices is by no means restricted to the United States, but prevails to a greater or lesser extent throughout the entire civilized world.

NEW BOOKS. Among the many important books of the year were the following: W. Robertson, *Meat and Food Inspection*, Chicago; F. Monier et al., *Traité théorique et pratique sur les fraudes et falsifications*, Paris; A. Jolles, *Die Nahrungs- und Genussmittel, ihre Herstellung und Verfälschung*, Leipzig and Vienna; H. Dugat and A. L. Girard, *Les produits Alimentaires*, Paris; G. A. Sutherland, *A System of Diet and Dietetics*, London; W. G. Thompson, *Practical Dietetics*, New York and London; J. Crichton Browne, *Parsimony in Nutrition*, London and New York; E. Maurel, *Traité de l'alimentation et de la Nutrition à l'état normal et pathologique*, Paris; R. C. Chapin, *The Standard of Living Among Workingmen's Families in New York City*, New York; H.

Lungwitz, *Stoffwechselversuche ueber den Eiweissbedarf des Kindes*, Berlin and Halle; Margaret J. Mitchell, *The Fireless Cookbook*, New York.

FOOT AND MOUTH DISEASE. See VETERINARY SCIENCE.

FOOTBALL. The year 1909 without doubt marked the passing of the particular game of football developed in American colleges during recent years. The many serious injuries received by players in 1909 aroused such a general protest against the game as it was played that even its most enthusiastic admirers have little hope of the sport being retained unless radical changes are made in the playing rules. Statistics show that football caused the death of 32 players in 1909, a larger number than in 1907 and 1908 combined. Many colleges, including Annapolis, Georgetown, and the University of Virginia, failed to finish out their schedules because of fatalities and serious injuries to players in those colleges. Experts are undecided as to just what changes should be made to remove the element of danger from the game. Some maintain that the game should be made even more open than the new rules of 1907 provided, while others hold that injuries are more apt to be received in the open game than if a return were made to the old mass plays. All realize, however, that something must be done speedily if the game is not to be abolished.

As far as attendance and interest shown were concerned the season of 1909 was a most successful one. Yale again turned out a remarkable team and completely outclassed every team played against. The hardest struggle Yale had was with the Harvard eleven, also a brilliant aggregation of players, which took place in the Harvard stadium before 40,000 spectators. As in 1908, when Harvard won by a 4-0 score, neither team was able to secure a touchdown, Yale's victory coming through ten field goals. The order in which other Eastern colleges were placed in 1909 was: Princeton, Dartmouth, Pennsylvania, Lafayette, Brown, Williams, Cornell and New York University. The following gives a summary of the games played by the leading colleges in the East: Yale defeated Wesleyan 11-0, Syracuse 15-0, Holy Cross 12-0, West Point 17-0, Colgate 36-0, Amherst 34-0, Brown 23-0, Princeton 17-0, and Harvard 8-0; Harvard defeated Bates 11-0, Bowdoin 17-0, Williams 8-6, Maine 17-0, Brown, 11-0, West Point 9-0 (fatal injury to Byrnes, a West Point tackle, stopped the game after only a few minutes of the second half had been played), Cornell 18-0, and Dartmouth 12-3, and was defeated by Yale 0-8; Princeton defeated Stevens 47-12, Villanova 12-0, Fordham 3-0, Annapolis 5-3, was tied by Dartmouth 6-6, and was defeated by Lafayette 0-6 and by Yale 0-17; Dartmouth defeated Bowdoin 15-0, Williams 18-0, Amherst 12-0, Holy Cross 12-0, tied Princeton 6-6 and was defeated by Harvard 3-12; Pennsylvania defeated Gettysburg 20-0, Ursinus 22-0, Dickinson 18-0, West Virginia 12-0, Brown 13-5, Carlisle 29-6, Cornell 17-6, was tied by Lafayette 6-6 and Pennsylvania State 3-3, and was defeated by Michigan 6-12; Lafayette defeated Hobart 50-0, Swarthmore 22-0, Princeton 6-0, Pennsylvania State 43-0, and Lehigh 21-0, and tied Pennsylvania 6-6; Brown defeated Rhode

Island 6-0, Colgate 5-0, Bates 17-0, Amherst 10-0, Vermont 17-0, and Carlisle 21-8, and was defeated by Pennsylvania 5-13, Harvard 0-11, and Yale 0-23; Cornell defeated Oberlin 16-6; Vermont 16-0, and Rensselaer P. I. 16-3, tied Chicago 6-6 and was defeated by Fordham 6-12, Williams 0-3, Harvard 0-18, and Pennsylvania 6-17; New York University defeated Rhode Island 7-0, Haverford 29-0, Stevens 28-0, Wesleyan 13-12, Rutgers 11-0, and Union 47-0, and tied Lehigh 6-6.

The championship of the Western colleges was claimed both by Michigan and Notre Dame, but owing to the fact that the first-named eleven had a much harder schedule it would appear that it should receive first honors, even though Notre Dame won the game between the two colleges. Chicago, Minnesota, Illinois, and Wisconsin were other leading Western teams. The principal games of the season were: Michigan defeated Ohio State 33-6, Syracuse 43-0, Pennsylvania 12-6, and Minnesota 15-6, tied Marquette 5-5, and was defeated by Notre Dame 3-11; Notre Dame defeated Pittsburgh 6-0, Michigan 11-3, Miami 46-0, and Wabash 38-0, and played a scoreless tie with Marquette; Minnesota defeated Lawrence 26-0, Iowa 41-0, Ames 18-0, Nebraska 14-0, Chicago 20-6, and Wisconsin 34-6, and was defeated by Michigan 6-15; Chicago defeated Purdue 40-0, Indiana 21-0, Illinois 14-8, and Northwestern 34-0, tied Cornell 6-6 and Wisconsin 6-6, and was defeated by Minnesota 5-20; Wisconsin defeated Lawrence 22-0, Indiana 6-3, and Northwestern 21-11, tied Chicago 6-6, and was defeated by Minnesota 6-34. In the South the University of Virginia and the Virginia Polytechnic Institute were the best teams.

The association or soccer championship of the Intercollegiate League was won by Columbia, with 4 victories and 0 defeats. Pennsylvania finished second and Haverford third.

FOREIGN MISSIONS, AMERICAN BOARD OF COMMISSIONERS FOR. An organization founded in 1810 by the Massachusetts Association of Congregational Churches, and incorporated two years later. It is the oldest foreign missionary society in the United States and its first missionaries were sent out in 1812 to India. Since that date the Board has commissioned 2572 persons. There were in 1909 twenty missions, including 107 stations and 1395 out-stations in Africa, Turkey, India, and Ceylon, China, Japan, Philippines, Spain, Mexico, Austria and Micronesia. The American missionaries number 581, and the churches under the auspices of the American Board number 584, with 73,671 communicants, of whom 5914 were added during the year. There were 1483 educational institutions of various grades, having 70,979 pupils. The native force of pastors, preachers, catechists and teachers was nearly eight times as numerous as the missionaries sent from America. The native communities contributed for Christian work only about \$25,000 less than the amount given by individuals and churches in America, or \$262,764. The receipts of the Board for the year 1909 were \$947,163, making the total receipts from the beginning \$39,527,427. The American Board is supported largely by voluntary contributions, though it has substantial endowment funds. The president is Samuel Capen, LL.D., and the secretaries are James L. Barton, D.D., Corne-

lius Patton, D.D.; editorial secretaries, E. E. Strong, D.D., and Rev. William E. Strong. The treasurer is Frank H. Wiggin. The headquarters of the Board are at the Congregational House, Boston, Mass.

FOREST LEGISLATION. See **FORESTRY**.

FORESTS, NATIONAL. See **FORESTRY** and **LANDS, PUBLIC**.

FOREST SCHOOLS. See **FORESTRY**.

FORESTRY. The forestry situation in the United States continues to be of vast importance, and the necessity for conservation is becoming better recognized. There are annually taken from the forests of the United States, including waste, but not the amount destroyed by fires, about 20,000,000,000 cubic feet of timber, while the estimated production is only 7,000,000,000 cubic feet. With this balance against the timber production, prompt action must be taken to avert or postpone the threatened timber famine. The conference on conservation, called by President Roosevelt in 1908, has been followed by other meetings, including the one at Washington, D. C., in February, 1909, to which delegates came from Mexico, Canada, and Newfoundland, in addition to those representing the United States. At the National Conservation Congress held at Seattle, Wash., August 26-28, 1909, forestry was one of the important topics of discussion.

According to the United States Bureau of Census the lumber business of 1908 showed the effect of the financial disturbance of 1907, more than twice as many mills being reported idle in 1908 as in 1907. The 31,231 active mills cut in 1908, 32,224,369,000 feet B. M. of lumber, 2,986,684,000 lath, and 12,178,490,000 shingles, valued at \$541,545,040. The average mill value of all lumber was \$15.37 per thousand, a decrease of \$1.19 per thousand from the values of 1907. As in 1907, Washington again took front rank in the lumber-producing States, with 8.8 per cent. of the total cut, followed by Louisiana, with 8.2 per cent., and Mississippi, with 5.6 per cent. Yellow pine furnished 33.8 per cent. of the total lumber produced, with Douglas fir second (11.1 per cent.), and white pine third (10.1 per cent.). Of the hard wood production, oak took first rank, with 8.3 per cent. of the total. The output of some of the other forest products was: Pulp wood, 3,346,953 cords, valued at \$8.38 per cord; crossties, 112,463,494, worth 50 cents each; tight cooperage staves, 345,280,000, valued at \$28.99 per thousand, and 19,703,525 sets of headings; tan bark and tanning extract to the value of \$21,361,719; veneers worth \$7,891,431; and products of wood distillation amounting to \$5,899,426. The exports of forest products in 1908 were valued at \$104,286,051; and the imports, mostly wood pulp, cabinet woods, gums, and rubber, amounted to \$101,189,803.

THE NATIONAL FOREST SERVICE. One of the principal functions of the United States Forest Service is the management of the enormous property embraced within the National Forests. On June 30, 1909, there were 150 National Forests, the gross area of which was 194,505,325 acres, an increase of 26,528,439 acres over 1908. Deducting from this area all patented lands or those against which claims have been entered, leaves 172,230,233 acres as the net area of the National Forests in the

United States, Alaska, and Porto Rico, all of which were under administration except those in Florida, Michigan, and Porto Rico. In the management of this area \$2,948,153.08 were expended in 1908, with \$599,471.02 additional for permanent improvements, such as trails, roads, telephone lines, fences, houses, etc. The total number of employees of the Forest Service on June 30, 1909, was 2881, 2582 of whom are stationed out of Washington, D. C. The total expenditures for forest work during the fiscal year were \$3,936,297.47. The receipts from the National Forests in 1909 were: Grazing, \$1,032,185.70; timber sales, \$736,102.08; special uses, \$38,982.88, or a total of \$1,807,270.66. Under the law 25 per cent. of the sales in any State or Territory is returned to it for school and road purposes. Under this law \$444,379 were deposited in State treasuries, the balance going into the Federal treasury. In addition to the sales mentioned, the free use of range and timber was granted to settlers to the value of \$169,081.12. The creation of forest districts, over which officers are placed so that most matters can be speedily adjusted, has worked well, and a marked improvement can be noted in sentiment toward the forest policy as the business is expedited and differences more easily reconciled.

In addition to administering and protecting the National Forests, considerable work is being done in extending them through planting operations. Forest nurseries, with a capacity of over 8,800,000 trees, have been established in twenty-four of the National Forests, and there are 721,000 trees available for immediate planting. Two forest experiment stations have been established, one in the Coconino Forest in Arizona and the other on Pike's Peak in Colorado. Some of the problems of the reforestation of cut-over lands will receive immediate study. The Forest Service is conducting many scientific investigations, and in cooperation with the Indian Bureau of the Department of the Interior, it has managed the forests of the Indian Reservations. For the War and Navy Departments the reforestation of their reservations is being done. Much coöperative work is being carried on with States, corporations, and individuals. For private owners more than 700,000 acres in twenty-six States have been given a field examination. Studies are being made of forest supplies, markets, etc. Extensive investigations are being made of wood preservation, timber tests, and methods for the utilization of wood waste. The laboratory work, which in the past has been conducted at a number of places, will now be concentrated at Madison, Wis., where the University of Wisconsin supplies the building and the Forest Service the equipment and the staff. Some special timber testing will be done coöperatively with the universities of California, Colorado, and Washington.

PROGRESS IN STATE FORESTRY, LEGISLATION, ETC. State action along the lines of forestry has included protection from trespass and fire, promotion of forestry, and establishment of forest reserves and organizations. Eighteen States have protective fire systems, those considered most satisfactory by experts being California, Oregon, Maryland, Washington, New Jersey, New York, and Minnesota. Twenty-five States have State forest officers, whose duties include protection and promotion.

State forests are maintained by twelve States and Territories, the area amounting to 3,270,771 acres. Of these New York ranks first, with 1,611,817 acres, followed by Pennsylvania, with 863,000 acres, Hawaii, 443,116 acres, and Wisconsin, 253,573 acres. Smaller areas are held as State forests by Minnesota, Michigan, Connecticut, Massachusetts, New Jersey, Indiana, etc. In Delaware, in cooperation with the National Forest Service, a survey is being made of the forest conditions preparatory to the perfecting of a forest policy for the State. In Hawaii cooperative studies of eucalyptus are in progress. Similar investigations are being carried on in the lower Rio Grande Valley in Texas. An investigation is being made of the forest resources of Kentucky. In Massachusetts 1330 acres have been planted to trees under the supervision of the State forest officer, and a movement has been begun for the reforestation of the numerous islands in Boston Harbor. The expense of clearing pine lands is being studied in Mississippi, where the cost varies from \$8 to \$17 per acre. In the Pacific Northwestern States the cost of preparing logged-over land for agriculture is about \$100 per acre. In Ohio a forest survey has been made of nineteen counties and tree planting operations are in progress, about 650,000 seedlings having been distributed since 1904. The last legislature appropriated \$8000 for forestry studies within the State. Vermont has provided for a State forester, and A. F. Hawes, formerly State forester of Connecticut, has been appointed to the position. In connection with quite a number of the State agricultural experiment stations, forestry investigations are being conducted.

The recent legislation in the different States has been along protective lines and upon the subject of the taxation of forest lands. The International Tax Association has considered the subject at some of its recent meetings, and some of their conclusions have been embodied in proposed State laws. They recognize the principle that forests should be taxed at their productive value rather than on their sale valuation. The Weeks bill before Congress, designed to secure forest reserves in the White and Appalachian mountains, passed the House on March 1, 1909, by a close vote, but failed of consideration in the Senate.

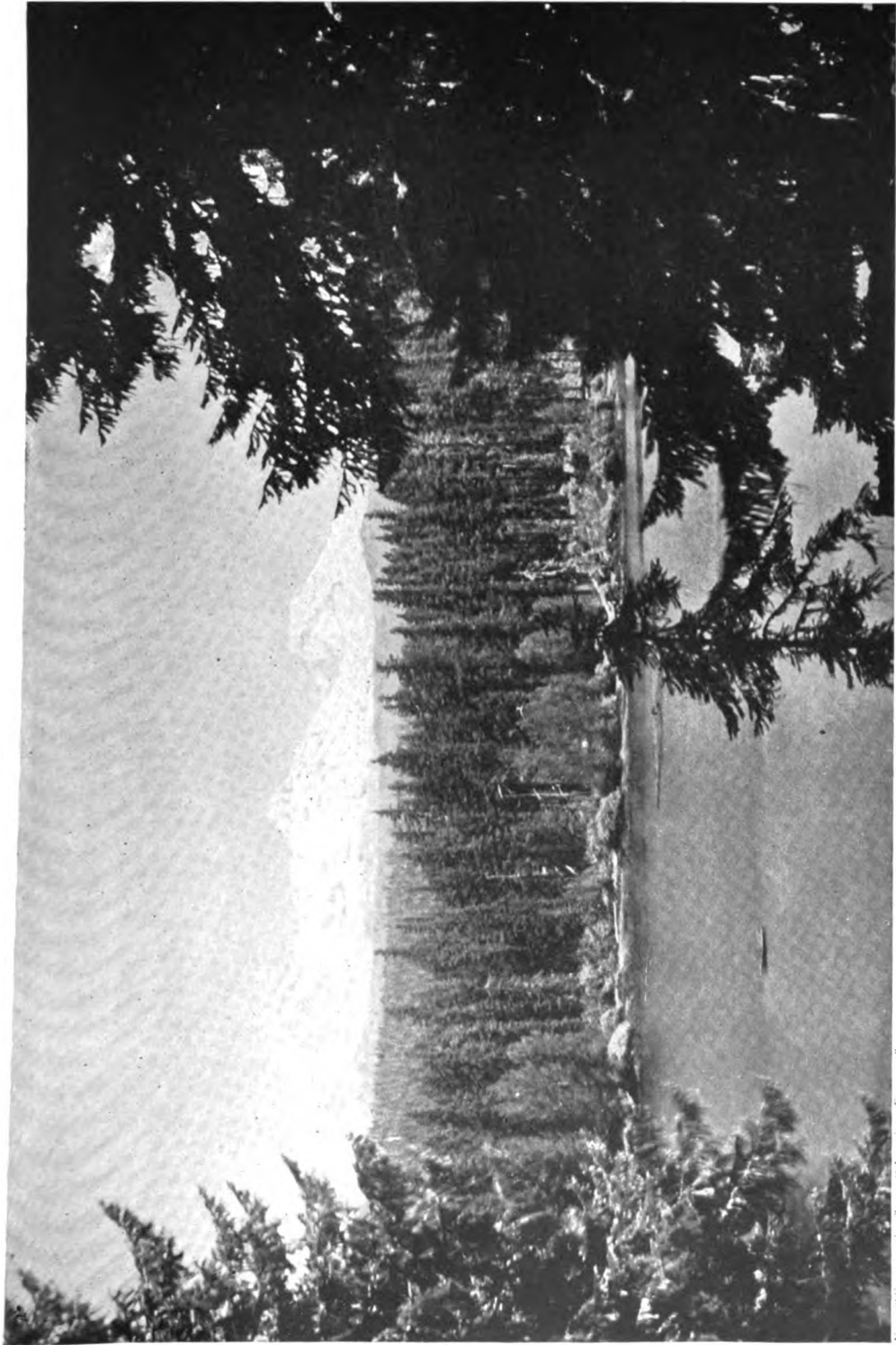
FORESTRY IN FOREIGN COUNTRIES. The present forest areas of the principal countries of the world are estimated as follows:

Country	Wooded area Acres	Per cent of total area
Sweden	54,734,614	51.9
Russia (excluding Poland).....	425,564,842	34.2
Hungary	24,174,443	32.6
Germany	34,569,794	25.9
United States	550,000,000	25.0
Switzerland	2,176,907	22.0
Norway	16,845,400	21.9
Belgium	1,259,000	17.3
France	22,224,134	17.0
Italy	10,266,310	14.5
Netherlands	636,299	7.9
Denmark	682,823	7.2
United Kingdom	3,075,773	4.0
Canada	799,000,000	38.0
Australia	102,037,000	5.4
India	149,000,000	25.0
New Zealand	17,074,003	25.6
Eastern Siberia	509,000,000	....

Not all of the above is productive forest, nor

is it all under conservative management. Among the most productive forests of the world are those of Bavaria, which in 1906 produced a net income of \$6.74 per acre; Baden, \$3.50 per acre; Brunswick, \$3.15 per acre; and Mecklenburg, \$2.15 per acre. In India from about 60,000,000 acres under management a revenue of \$5,816,000 was obtained in 1907. In Great Britain a royal commission on afforestation has reported a planting project for reforesting about 9,000,000 acres, 10,000 acres to be planted annually. In Bavaria, steps are being taken to protect the last natural yew forest of Europe, near Munich. Germany has begun a survey of the forest resources of West Africa, Kamerun, and Togo, and the principles of scientific forestry are soon to be applied in those countries. A reorganization of the French forest service was made early in 1909. The government of Sweden has appointed a commission of experts to consider and report on a forest policy for that country. In Italy much of the forestry work is in tree planting, and in 1908 nearly 15,000,000 trees and 194,600 pounds of tree seeds were distributed for planting. One-half the cost of planting is contributed by the State, the balance coming from committees, individuals, etc. Great interest has been aroused through the planting of rubber trees to supply the waning production, and it has been estimated that fully 600,000 acres have been planted to rubber trees of all kinds in the Tropics, three-fifths of them in Ceylon and the Malay Peninsula. The government forests of Java embrace 1,665,000 acres, most of which are in teak and under definite working plans. New Zealand has a definite policy of forest planting, and since 1906 about 2500 acres have been planted annually, principally with European and North American species, the native trees being of too slow growth to make their planting profitable. Argentina has established two national parks of large extent, and the proclaiming of a forest reserve of Terre del Fuego is contemplated. An attempt has been made to determine the forest resources of Portuguese East Africa and a report on them has recently been issued. Canada at the end of 1908 had fifty-three forest reserves and national parks which embraced 128,060,000 acres. In addition, 75,800,000 acres were under timber license or lease. Canada's exports of forest products in 1908 were \$8,192,382, of which square timber and pulp wood comprised \$6,175,376. The forestry department of the Ontario Agricultural College distributed more than 400,000 seedling trees to farmers in 1908 for planting on waste lands. The government of British Columbia has established a Bureau of Forestry, with an expert at its head who is expected to look after the timber interests of the province.

FOREST SCHOOLS, ORGANIZATIONS, ETC., IN THE UNITED STATES. Graduate instruction is now offered at the universities of Yale, Michigan, and Harvard. Undergraduate courses are given at about a dozen colleges and universities and courses of lectures are provided at many of the agricultural colleges and other educational institutions. Recently Columbia University has added forestry to its curriculum. The University of Minnesota has received a donation of 2200 acres of land for experimental work in forestry. The Yale Forest School has received \$100,000 from Mrs. M. K. Jesup to found a chair of sylviculture. The University of Montana has arranged a special short course



From "Conservation," Box "American Forestry"

THE THREE SISTERS FROM FISH LAKE, CASCADE FOREST RESERVE, OREGON

The timber is alpine, fir, and bull-pine

FORESTRY

for forest rangers, and the men connected with Forest District No. 1 will be detailed for instruction from January to March in 1910. In Canada courses in forest instruction are provided by the University of Toronto, the University of New Brunswick, and Ontario Agricultural College. A special conference on forestry education was held at Washington, D. C., in December, with representatives of fourteen institutions present. The forest school long connected with the Biltmore estate will be conducted as a peripatetic school in the future, part of the time being spent in Europe and part in the forests of this country.

The twenty-eighth annual meeting of the American Forestry Association was held at Washington, D. C., January 13 and 14, 1909. The subject of forest fires was given especial prominence in the programme. Secretary of Agriculture James Wilson resigned as president of the association and he was succeeded by Hon. Curtis Guild, Jr. The Canadian Forestry Association met at Regina, Saskatchewan, September 3 and 4, 1909.

Colonel W. F. Fox, for a number of years superintendent of forests of New York, died June 16, 1909. Austin Cary, assistant professor of forestry of Harvard University, succeeded Colonel Fox. Hofrath Friederich, director of the Austrian Forest Experiment Station at Mariabrunn, died late in 1908. Matsumo, the founder of modern forestry in Japan, died within the year. A forest school and forest experiment stations in connection with the University at Tokio are due to his efforts.

FORMOSA. An island about 100 miles off the China coast, formerly belonging to China, but since 1895 to Japan. The area is stated at 13,503 square miles. The estimated population in 1909 was 3,132,000, including 54,000 Japanese. The chief towns, with population at end of 1906, are Dai-Hoku, the capital, 80,226; Dainan, 52,401; Rokko, 19,442; and Kelung, 16,846. An educational system, among many other improvements, has been established by the Japanese. There are reported 153 elementary schools for natives, with 620 teachers and 23,350 pupils.

PRODUCTION AND COMMERCE. In 1909 the area under cultivation was estimated at 1,618,800 acres, of which 788,470 were in rice fields. In 1907 the rice acreage for the first crop was 536,484, and for the second 631,578; total production, 44,760,430 bushels, valued at \$22,410,000. The annual production is steadily increasing. After rice, the leading products are sugar and tea, while opium, ramie, jute, and sweet potatoes are of considerable importance. The four sugar companies in Formosa produce annually 1,580,000 piculs (of 13½ pounds each). A large part of the world's camphor supply is obtained in the forests under government monopoly. Gold and coal are the leading mining products, but deposits of silver, salt, sulphur, and petroleum are also exploited. The coal output in 1907 amounted to 134,186 tons. Manufactures include sugar, flour, oil, tobacco, spirits, iron-work, glass, soap, brick, etc.

The imports and exports of merchandise in 1907 were valued at 30,971,000 yen and 27,376,000 yen respectively; in 1908, 38,002,000 and 33,721,000 respectively. The leading imports are textiles, metal wares, lumber, tobacco, and opium. The leading export is rice, which

in 1908 amounted to 354,899,195 pounds, valued at 10,547,116 yen; almost the entire export went to Japan, or 338,311,743 pounds, valued at 10,127,957 yen. Next to rice in export value is tea, which in 1908 amounted to 23,240,947 pounds, worth 6,186,616 yen (to the United States 16,195,330 pounds, 4,441,080 yen). The camphor export declined from 4,121,566 pounds in 1907 to 3,255,507 pounds, valued at 2,615,000 yen, in 1908 (to the United States, 1,365,910 pounds, 1,052,410 yen). There are upwards of 425 miles of railway in operation, including over 125 miles of light railways. The reported number of telegraph offices is 97, with 1100 miles of line and 4000 miles of wire. Post-offices in 1907 numbered 125.

FINANCE AND GOVERNMENT. The estimated revenue and expenditure for the fiscal year 1909 balanced at 33,871,328 yen; for the fiscal year 1910, 29,951,449. Revenue consists largely of inland taxes, customs, and subsidies from Japan; expenditure is chiefly for internal administration and public works. Japanese government in Formosa began March 31, 1896. The Governor-General in 1909 was General S. Sakuma. A campaign against the aborigines has been going on for the last few years. A special force is employed against them consisting in 1908 of 1086 constables and 4930 Aiyu, the latter enlisted from the natives. By the close of 1908 it was reported that the objects of the campaign were nearly attained, the aborigines being confined to the mountain regions, but some resistance was offered in 1909.

FORTIS, ALESSANDRO. An Italian statesman, died December 4, 1909. He was born at Forti in 1842, and after studying law at the University of Pisa, he settled in Bologna and soon acquired a good practice as an advocate. He was an enthusiastic Liberal and fought under Garibaldi at Mentana, and on his return to Bologna he became a noted agitator on behalf of the Republican party, and in consequence was one of the leaders arrested at Villa Ruffi. He entered the Chamber as deputy for Forti in 1880, a seat which he retained for five successive Parliaments, until he was defeated in 1897 by Signor Fratti. He soon found another seat, however, which he continued to hold until the time of his death. He entered Parliament originally as an orthodox follower of Mazzini and a Republican, but his ideas gradually changed, and he ultimately confessed the same faith as the constitutional members who surrounded him. He became a leader of the Chamber at the head of the Moderate Radicals and attained great distinction as a politician and an orator. From 1889 to 1891 he held the post of Under-Secretary in the Ministry of the Interior under Crispi, and he did not hold office again until March, 1905, when he was appointed Premier and head of his own cabinet. The Ministry was not successful and fell at the end of the year. It was reconstituted, only to fall definitely in the beginning of 1906. Fortis did not appear prominently in politics again until the occasion of the debate at the end of 1908 on the Italian foreign policy provoked by the rôle played by Italy with regard to the Austrian annexation of Bosnia and Herzegovina. He then spoke ostensibly in support of the government, but his speech was a strongly worded denunciation of the treatment of Italy by her Austrian ally

and the spiritless part played by the Italian Foreign Office. Although Fortis was not prominent in the government of the country, he was always an influence to be counted with in the Chamber.

FRANCE. A republic of western Europe. Capital, Paris.

AREA AND POPULATION. The total area is 207,129 square miles. The total population, according to the census of 1906, was 39,252,245, or 189.5 per square mile. From 1811 to 1820 the average annual excess of births over deaths was 5.7 per thousand of the population; from 1851 to 1860, 2.9; from 1881 to 1885, 1.6. In 1903 the excess of deaths over births was 73,106. In 1904, 1905, and 1906 there was an excess of births of 57,026, 37,120 and 26,651 respectively. In 1907 the excess was again in favor of deaths by 19,920. The movement of the population in the first half of 1908 and the corresponding period in 1909 is given below:

	1908	1909
Births	411,402	398,710
Deaths	401,894	426,913
Marriages	162,495	156,294
Divorces	5,605	6,148

In some of the northern departments (first half of 1909) the births are in excess: Nord, 21,984 births, 18,629 deaths; Pas-de-Calais, 15,062 births, 10,935 deaths; Finistère, 11,536 births, 8687 deaths. There were in 1903 8919 divorces; in 1904, 9860; in 1905, 10,019; in 1906, 10,573; in 1907, 10,938. The foreign population by nationalities in 1901 was as follows: Italians, 330,465; Belgians, 323,390; Germans, 89,772; Spaniards, 80,425; Swiss, 72,042; English, 36,948; Luxembourgais, 21,999; Austrians, 9790; others, 69,040; total, 1,033,871. The population was divided (1901) according to occupation as follows: Agriculture and forestry, 8,176,569; manufactures, 5,819,855; commerce, 1,822,620; public service, 1,297,569; personal service, 1,015,037; transport, etc., 830,643; liberal professions, 399,839; extractive industries, 266,351; fisheries, 67,772. The urban population (1901) was 15,957,190; the rural, 23,004,755. According to the census of 1906, Paris had 2,763,393 inhabitants; Marseilles, 517,498; Lyons, 472,114; Bordeaux, 251,917.

EDUCATION AND RELIGION. Education, public and private, is under control of the Minister of Instruction. Primary instruction is free and compulsory. The total number of primary schools in France in 1906-7, public and private, lay and clerical, was 83,301, with an enrollment of 5,425,444 pupils. The closing of the congregational schools in accordance with the law of July 1, 1901, increased the attendance of the public and private lay schools between 1902 and 1907 by 931,065. The number of secondary schools for boys in 1908 was as follows: Lycées, 107, enrollment 58,998; communal colleges, 227, enrollment 35,282; private institutions, lay and clerical, 619, enrollment 62,558. The secondary schools for girls (1907) were: Lycées, 47, with 16,760 pupils; colleges, 58, with 9044 pupils; secondary courses, 61, with 7046 pupils. The number of primary normal schools (exclusive of the two higher normal schools at Fontenay and St. Cloud) was 123 in 1907, with 8809 students. The Ecole Normale Supérieure prepares teachers for secondary instruction. The state

universities and special schools numbered 73 in 1908, with 39,890 students. There are scientific, technical, military, naval, commercial, musical, and fine arts schools dependent upon the various ministries. In 1906, 3.5 per cent. of the conscripts could neither read nor write. The state recognizes no religion and tolerates all creeds. Since the separation of church and state by the law of December 9, 1905, the state, the departments, and the communes have been relieved of all financial obligations toward the churches, though pensions and allowances have been granted to avoid working hardship during the transition period. The arrangements made by the government to acquire administrative control over buildings used for public worship have not been agreed to by the clergy; nor have the clergy acquiesced in the law of December 9, 1905. No definite conclusions have for that reason been reached in the matter of pensions and grants. The amount expended in 1909 was 505,880 francs, of which 318,000 was for direct assistance to the clergy and their families. Before the passing of the law (July 1, 1901,) requiring every monastic association to be specially authorized, there were 910 recognized associations, and 753 not recognized. The total establishments numbered 19,514, and the members 159,628 (30,136 men and 129,492 women). Of the 753 unrecognized associations, 305 dissolved themselves upon the passing of the law, and 448 requested authorization, which the Chambers refused in the majority of cases.

AGRICULTURE. Of the total area, 8,397,131 hectares (1 hectare = 2.47 acres) are under forests and 36,977,098 hectares are under crops and grasses or fallow. The chief product of the soil is wheat, of which France grows sufficient for her own needs and for a large export flour trade as well. The home consumption per capita is greater than in any other European country (excepting Belgium), being slightly under 7½ bushels. The vine is extensively cultivated, France being the home of Bordeaux, Burgundy, champagne, etc. The horticultural production, officially valued in 1892 at about 295,337,000 francs, increased to the value of about 398,964,000 in 1908. The principal agricultural products other than wheat, are barley, rye, maize, oats, potatoes, and sugar beet root. The vine growers numbered, in 1907, 1,601,332; the 1907 yield was valued at 965,375,906 francs. The area planted to vineyards in 1908 was 1,654,366 hectares against 1,649,157 in 1907; the wine yield amounted to 60,545,000 hectolitres (1 hectolitre = 26.417 U. S. gallons) against 66,070,000 in 1907. The acreage under vines in the Department of Marne, the champagne district, was 34,233 acres, against 34,718 in 1907. A comparative table of the production in the department by arrondissements for 1907 and 1908 is given below, showing a decrease of over 41½ per cent. in 1908:

Arrondissement	1907 Gallons	1908 Gallons
Rheims	4,295,261	1,488,297
Eprenay	2,902,121	1,333,578
Vitry le François	437,289	390,075
Châlons	404,958	121,958
Ste. Menchould	4,856	7,219
Total	8,044,485	3,341,127

The cider yield in 1908 amounted to 19,976,000 hectolitres, against 3,360,000 in 1907—the

latter being the lowest figures on record. The average production for the decade from 1898 to 1907 was 16,000,000 hectolitres. The government especially encourages silk culture, which is carried on in twenty-four departments of the Republic, Gard, Drôme, Ardèche, and Vaucluse being the most important. There were employed in this industry in 1907, 124,463 persons, against 122,045 in 1906; 188,360 ounces (of 25 grammes) of eggs were put in incubation, against 178,303 in 1906, and the total production of cocoons was 8,396,201 kilos (in 1906, 7,520,477 kilos). The number of live-stock in France on January 1, 1908, was as follows: Sheep and lambs, 17,460,284; neat cattle, 13,939,722; swine, 7,049,012; horses, 3,094,698; goats, 1,421,009; mules and asses, 552,778. See AGRICULTURE; FORESTRY; and STOCK RAISING.

MINING AND METALS. Of the 1489 conceded mines in the Republic, 608 were in operation in 1907, with 183,900 workers. The yield of conceded mines was valued in 1907 at 625,924,301 francs; of the non-conceded, at 12,811,049 francs. The leading mineral and metal products were, in 1907: Coal and lignite, 36,753,627 tons; iron ore, 9,196,474; pig iron, 3,590,200; worked

(34,128 men, 1957 women, 1140 children), and yielding 656,832 metric tons. The production of alcohol in 1907 amounted to 2,514,810 hectolitres. See LIQUORS, FERMENTED AND DISTILLED.

FISHERIES. There were, in 1905, 95,804 persons engaged in the various fisheries, with 27,645 sailing boats of 186,030 tons, and 201 steamers of 13,874 tons. The total value of the products was 122,891,036 francs, of which the cod fisheries contributed 18,880,855 francs, the herring fisheries 13,829,036, and the sardine fisheries 10,054,367. The sardine catch in 1908 was estimated at 8,000,000 kilos, against 6,000,000 in 1907.

COMMERCE. The general commerce (which includes all goods entering or leaving France) was valued in 1907 as follows: Imports, 7,874,600,000 francs; exports, 7,256,100,000. The special trade includes only imports for home consumption and exports of French origin; the imports in 1907 were valued at 6,223,000,000 francs, and in 1908 at 6,090,800,000; the exports (1907) at 5,596,100,000 and (1908) 5,271,900,000. The chief classes of the special trade were valued in francs as follows:

	Imports		1st 9 mos. of 1909
	1907	1908	
Food products	1,038,000,000	920,000,000	645,900,000
Raw materials	4,013,000,000	4,020,000,000	2,850,011,000
Manufactured goods	1,172,000,000	1,150,000,000	842,727,000
Total	6,223,000,000	6,090,000,000	4,338,638,000

	Exports		
	1907	1908	
Food products	747,000,000	736,000,000	563,126,000
Raw materials	1,508,000,000	1,476,000,000	113,261,000
Manufactured goods	3,341,000,000	3,059,000,000	1,978,926,000
Total	5,596,000,000	5,271,000,000	2,655,313,000

steel, 1,860,300; finished iron and steel, 580,000. There were fifty-nine smelting works in operation, with 122 blast furnaces. The production of zinc amounted to 44,113 tons; of antimony, 24,359; manganese, 18,188; lead and silver, 18,068; arsenic, 7860; copper, 2404. The output of salt was 1,225,700 tons. The quarries produced building stone, slate, cement, etc., to the value of 248,183,265 francs. Returns for 1908 give the coal output, including lignite, at 37,-

The principal imports in 1908 were wool, cotton, coal, silk, oleaginous fruits and seeds, machinery, raw skins, copper, timber, wines, coffee, rubber, cereals, and minerals. The principal exports were flour, cotton, silk, and woolen tissues, wines, silks, automobiles, raw hides, tools and metal goods, dressed skins, chemical products, pig iron, and iron and steel. The countries of origin and destination in the special trade for 1907 and 1908 were as follows:

	Imports (francs)		Exports (francs)	
	1907	1908	1907	1908
Great Britain	883,000,000	852,000,000	1,369,000,000	1,216,000,000
United States	670,000,000	741,000,000	396,000,000	321,000,000
Germany	638,000,000	626,000,000	649,000,000	641,000,000
Belgium	426,000,000	436,000,000	861,000,000	798,000,000
Argentina	287,000,000	292,000,000	.....	.....
Algeria	291,000,000	273,000,000	393,000,000	403,000,000
Russia	271,000,000	251,000,000	57,000,000	80,000,000
Italy	194,000,000	187,000,000	264,000,000	274,000,000
Spain	169,000,000	157,000,000	126,000,000	135,000,000

622,556 tons; pig iron, 3,412,393; worked steel, 2,743,045.

MANUFACTURES. In view of capital invested and value of annual output, the flour-milling industry is the most important in the country. The duty on flour is more than twice the duty on wheat, and except in the event of a serious crop shortage there is little opportunity under the existing laws for flour imports for home consumption. There were in 1907-8 sugar works to the number of 255, employing 37,225 persons

The figures for the 1907 flour exports are given in bags of 220 pounds each as follows: To Egypt, 848,911 bags; Turkey, 404,625; Switzerland, 384,428; Great Britain, 306,991; Belgium, 217,679; Tunis, 142,386; Free zones, 137,223; Holland, 100,151; Algeria, 60,471; Germany, 57,974; various colonies, 55,221; Spain, 47,436; Indo-China, 41,378; Senegal, 34,280; Norway, 20,448; Russia, 19,066; other countries, 154,687; total, 2,933,355. The Bordeaux wine exports for the first six months of 1909 amounted

to 10,265,904 gallons; of which Germany received 2,315,186, Great Britain 1,412,675, Argentina 1,123,991, and Belgium 1,121,983 gallons.

The imports and exports of specie and bullion for 1907 were (in francs) as follows:

	Gold	Silver	Bronze	Total
Imports	444,431,030	360,860,377	108,750	805,400,157
Exports	154,573,532	215,500,836	703,430	370,777,538

COMMUNICATIONS. The railways are nearly all conceded to companies, and will lapse to the State upon the expiration of the concession. The total length of general lines January 1, 1908, was 25,000 miles, besides 4850 miles of local lines. The total length of navigable rivers in 1907 was 7964 kilometres, of which 6986 kilometres were actually navigated; the total length of canals was 4969 kilometres, of which 4884 were in actual use. An enumeration of all vessels of over three tons' capacity engaged in inland navigation, taken by direction of the Minister of Public Works (1909), shows the total number to be 15,310, with a tonnage of 3,841,745 and carrying an aggregate of 45,559 employees. Of these vessels 2649 are foreign owned. There were in 1905 in all France 38,308 kilometres of national road. The total length of telegraph lines in 1906 was 104,770 miles, with 388,770 miles of wire. There were 17,038 telegraph offices, of which 13,073 belonged to the State; the messages carried during the year numbered 57,874,120; the total receipts amounted to 38,760,571 francs. The mercantile marine, January 1, 1908, included 15,639 sailing vessels of 662,828 tons net, with crews numbering 73,747; and 1554 steamers of 739,819 tons, with crews numbering 16,389. The total tonnage entered at French ports in 1907 was 34,489,032 tons (French, 13,929,156); cleared, 34,618,915 (French, 13,907,789). The Chamber of Commerce has under consideration a plan for joining the Loire and the Garonne regions by canalization, so that central Europe may have an all-water route outlet at Bordeaux and the Atlantic Ocean, by way of Périgueux, Limoges, Guéret, Montuçon, Moulins, and Digoin. A law passed by the French National Assembly (1909) provides for the construction at Havre of a special avant-port, a tidal basin, and a dry dock 984 feet long and 115 feet wide, to cost in the neighborhood of 86,528,500 francs and to be completed not later than 1915.

FINANCE. The total revenue for 1909 was estimated at 3,973,265,048 francs; the total expenditure at 3,973,035,678. The principal estimated sources of revenue were: Direct taxes, 570,187,986 francs; indirect taxes, 2,278,680,600; government monopolies, 895,944,900; various, 228,452,762. The principal classes of expenditure were: Public debt, 1,263,540,781 francs; war, 789,327,606; marine, 332,902,510; finance, 313,007,977; posts and telegraphs, 309,288,172; instruction, 274,523,286; public works, 248,609,070; interior, 126,589,558; colonies, 92,369,689; commerce and industry, 56,812,637; agriculture, 46,525,494; justice, 37,542,733; President, Chamber, Senate, 19,652,660; foreign affairs, 19,623,000; fine arts, 19,025,416; labor, etc., 14,189,289; worship, 505,800. The estimates finally voted were (including in the receipts the sum of 55,000,000 francs from bonds): Receipts, 4,005,445,069; expenditures, 4,005,224,676; surplus, 220,393.

The capital of the debt stood, January 1, 1909, at 30,394,655,240 francs, being the heaviest debt ever yet incurred by any nation in the world; the funded debt was 28,998,659,840, and the floating debt, 1,395,995,400. The interest and annuities to be paid under the various heads of the

public debt, according to the budget estimates for 1909, were as follows: Consolidated debt, 655,841,611 francs; redeemable debt, interest and amortisation, 316,036,220; floating debt, 291,662,950.

The Bank of France is the only bank of issue. Its financial situation, December 24, 1908, was reported as follows: Cash (gold, 3,488,386,000; silver, 889,646,000), 4,378,032,000 francs; portfolio, 654,938,000; advances, 700,525,000; securities and real property, 256,111,000; capital and reserves, 225,018,000; notes and circulation, 4,954,658,000; accounts current, 575,489,000. The number of postal savings banks in operation in 1908 was 7883, with total deposits during the year of 512,294,958 francs. The total number of depositors, January 1, 1908, was 3,977,755, and the total amount, including interest at 2½ per cent., due depositors on that date was 1,338,729,192 francs. The municipal and private savings banks at the close of 1904 numbered 550 principal and 1461 branch offices, with 7,422,326 depositors and deposits amounting to 3,246,117,046 francs.

There is a double standard of value, gold and silver, the ratio being theoretically 15½ to 1. Of silver coins, however, only the 5-franc piece is legal tender, the free coinage of which has been suspended since 1876. The franc, the monetary unit, is worth 19.3 cents. It was announced in 1909 that the French government had decided to coin for the first time 25- and 10-centime pieces (fractional currency) made of aluminum to take the place of the old copper coins, which are to be withdrawn from circulation. The nickel 25-centime piece will not be withdrawn.

NAVY. The larger vessels of the effective navy were as follows in 1909: First-class battleships: six of 14,865 tons each; one of 12,728 tons; one of 12,205 tons; one of 11,924 tons; second class battleships: one of 11,986 tons; one of 11,882 tons; one of 11,824 tons; three of 11,260 tons each; one of 10,983 tons; one of 10,581 tons; one of 8948 tons; first-class armored cruisers: one of 13,644 tons; one of 12,750 tons; three of 12,550 tons each; one of 11,270 tons; four of 10,000 tons each; three of 9516 tons each; second-class armored cruisers: three of 7735 tons each; one of 6300 tons; one of 5365 tons; two of 4750 tons each. In 1909 there were building six first-class battleships of 18,320 tons each and two first-class armored cruisers of 14,000 tons each. The number and displacement of effective war ships, built and building, of 1000 or more tons, and of torpedo craft of 50 or more tons, were as follows in 1909: Battleships of 10,000 tons and over, 23, aggregating 323,450 tons; coast defense vessels, 10, of 59,140 tons; armored cruisers, 23, of 220,732 tons; cruisers over 6000 tons, three, of 24,036 tons; cruisers 6000 to 3000 tons, 12, of 48,505 tons; cruisers 3000 to 1000 tons, five, of 11,766 tons; torpedo-boat destroyers, 72, of 26,672 tons; tor-

pedo boats, 259, of 24,270 tons; submarines, 96, of 28,335 tons; total, 503 war vessels, aggregating 766,906 tons. In 1909 parliamentary investigation into the condition of the navy revealed much extravagance, negligence, and confusion. In the ten-year period from 1900 to 1910 the expenditure on the French navy amounts to about \$628,500,000, and on the German navy about \$590,700,000; yet in tonnage, if not in effectiveness, the French fleet has been surpassed by that of Germany. The investigation showed that armaments for new battleships were not ready long after the ships themselves were completed, that many guns were so defective as to cause the abandonment of firing practice, that not only were there huge stocks of condemned shells, but that shells of the same pattern were still being manufactured, that there was no graving dock capable of accommodating the new battleships, as the credits voted for new docks had been spent elsewhere. See paragraphs on *History*.

ARMY. Personal military service in France is compulsory for all citizens between the ages of twenty and forty-five, and involves two years with the colors, eleven years in the reserve of the active army, six years in the territorial army and six in its reserve. The soldiers of the reserve and territorial army are called out for periodical training. The active army has about 590 battalions (163 regiments) of infantry, thirty battalions of chasseurs, twelve foreign battalions, twenty-four battalions of zouaves, twenty-four of Algerian Tirailleurs and five of African light infantry, or in all about 685 battalions. The cavalry comprise thirty-one regiments of dragoons, twenty-one of chasseurs, fourteen of hussars, thirteen of cuirassiers, six of chasseurs d'Afrique, and four of Spahis; each regiment divided into five squadrons. The artillery, which was to be increased, consisted of 433 field batteries, fifty-two horse batteries, twenty-six mountain batteries and 109 foot (or fortress) batteries. The engineers included twenty-six battalions and three railway companies, with signal and telegraph corps, aeronautical divisions, etc. The military train had twenty squadrons of seventy-two companies. The strength of the active army by arms was as follows:

	France	Algeria and Tunis
Infantry	332,845	43,200
Cavalry	56,764	8,450
Artillery	76,936	3,875
Engineers	12,250	1,118
Train	10,560	1,850
Total	489,355	58,493

In addition there were 2200 non-commissioned officers and 13,000 men of the administrative troops, 4000 unattached officers, 420 officers and 3220 men in the military schools, and 2400 officers and men supernumerary. This made a peace strength for the active army of 22,000 officers and 553,782 men, with 120,474 horses. There was in addition a gendarmerie of 683 officers and 24,034 men. The active army is divided into twenty corps, each of which occupies one of the military districts into which France is divided. Each military district is (generally speaking) divided into eight sub-divisions. Each corps is usually made up of two divisions of in-

fantry, one brigade of cavalry, one brigade of artillery, one battalion of engineers, and the appropriate administrative auxiliary troops. The headquarters of the corps are at Lille, Amiens, Rouen, Le Mans, Orleans, Chalons-sur-Marne, Besançon, Bourges, Tours, Rennes, Nantes, Limoges, Clermont-Ferrand, Lyons, Marseilles, Montpellier, Toulouse, Bordeaux, Algiers, and Nancy. In addition there are a colonial corps in Tunis and the troops attached to the military department of Paris.

The French Reserve comprised 245 three-battalion regiments of infantry with skeleton organization, thirty battalions of chasseurs, forty regiments of cavalry, forty-one squadrons, and 216 batteries. The territorial army comprised 145 regiments of infantry, seven battalions of chasseurs, forty-two squadrons of cavalry, about 100 batteries, twenty battalions of engineers, and various miscellaneous civil and other troops.

The decreasing birth rate was affecting the army of France and the annual contingent drawn for service was found to be diminishing in numbers. From 215,000 in the period 1896-1905 it fell to 210,000 in 1908 and was estimated at 207,000 for 1909 and at 204,000 for 1912. This reduction was considered as bound to work eventually a decrease in the effective strength of all the army corps. The peace strength of the army in 1909 was stated at 22,000 officers and 553,782 men (56,110 in Algeria, 20,000, of which one-third are native, in Tunis), and 120,474 horses. There was in addition a gendarmerie of 683 officers and 24,034 men. The mobilized field army of France would consist of 725,000, the First Reserve of 475,000 and the dépôts of 625,000. The organized territorial army was estimated at 550,000 and the unorganized at 700,000. In other words the total war effective of the French army was estimated at 2,350,000 with resources from which a million additional could be drawn for service.

In France, as in other European countries, a reorganization of the artillery was commenced during 1909. By the terms of the law of July 24, 1909, an increase as well as reorganization was provided for, to take effect within two years, though the four-gun battery was retained. The scheme called for forty-two coast and forty-seven fortress batteries, 619 field batteries, twenty-one Rimailho 6-in. field howitzer batteries, fourteen mountain batteries, and sixteen horse batteries. For colonial service, there were to be eight coast, fifteen field and four mountain batteries. The increase in the number of batteries thus provided was 128, for officering which the infantry was being drawn upon. The Chamber made special appropriations, \$6,500,000, towards the cost of new ammunition. The army estimates for 1909 amounted to 696,454,265 for the troops at home, 66,049,443 francs for extraordinary expenses and 37,371,242 francs for the colonial troops.

GOVERNMENT. The constitution of the Republic vests the executive authority in a president, elected by the National Assembly for seven years, and assisted by a cabinet responsible to the Chambers. The legislative power devolves upon the National Assembly, composed of the Senate and the Chamber of Deputies. The members of the Senate (300) are indirectly elected for nine years; those of the Chamber of Deputies (584), by universal suffrage for four years. The President (1909), Armand Fallières, was born November 6, 1841, and was elected

January 17, 1906. The Cabinet, July 24, 1909, was composed as follows: Premier, Minister of the Interior and Public Worship, Aristide Briand; Foreign Affairs, Stephen Pichon; Finance, Georges Cochery; Justice, Louis Barthou; Public Instruction, M. Doumergue; War, General Brun; Marine, Admiral Boué de Lapeyrière; Commerce and Industry, Jean Dupuy; Public Works, Posts, and Telegraphs, Alexandre Millerand; Colonies, Georges Trouillot; Agriculture, M. Ruau; Labor, M. Viviani.

HISTORY

THE MOROCCAN QUESTION. The government was interpellated on the subject of Morocco on January 15. On this occasion M. Delcassé criticised the Moroccan policy and M. Jaurès asked the government to present a definite plan and demanded the publication of General Lyautey's report containing certain proposals made to the government. Upon M. Pichon's refusal on the ground that this was not the proper time to explain the basis of the government's policy as furnished by the report and that the government would set forth the facts later, M. Jaurès presented the arguments for an obligatory arbitration between France and Germany and demanded that France renounce any sort of ambitious designs in Morocco. On behalf of the government it was said that the time had not come for France to back down before Germany in Morocco. M. Pichon presented an outline of the policy that had been pursued. The Chamber supported the government by a vote of 380 to 98 in a resolution declaring its confidence that the government would "pursue in Morocco the policy of collaboration and civilization dictated by its interests, traditions, and agreements, and by the engagements undertaken at Algéciras." The Moroccan credits were passed on January 18 by a vote of 459 to 67. In criticism of M. Jaurès it was urged that he seemed oblivious of the fact that France and Morocco had a common frontier of 1000 km., that he seemed to wish the withdrawal of troops, the non-intervention of France, and the recall of General Lyautey. M. Regnault was sent on a mission to Fez in January to discuss the question of indemnity and the conditions of evacuation. The chief event in Moroccan affairs during the year was the signing on February 9 of the agreement between France and Germany which will be discussed in a separate paragraph. In general the programme of the French government as outlined in M. Pichon's answer to the arguments of M. Jaurès was the restoration of order in Morocco. M. Pichon declared that the government would continue its work of familiarizing the Moors with European civilization while respecting their customs and their national independence, and he referred to the valuable work done by Great Britain and Russia toward keeping the European peace. The credit which the government asked for was ultimately granted. Early in March it was reported that twenty-five deserters of German origin had been sentenced for trial at Oran to varying terms of penal servitude ranging from two to eighteen years and in the case of the leader to twenty years' penal servitude and twenty years' expatriation. In the spring a Moroccan mission under El Mokri arrived in Paris to discuss the points at issue between the two countries, including the questions as to French evacuation, as to the satisfaction of French pecuniary claims, and as to a loan.

Protracted negotiations followed. In October General d'Amade, the hero of the Moroccan War, fell into disfavor with the government on account of an interview in a French newspaper in which he declared frankly that the Spanish operations in Morocco were injurious to France. (See SPAIN and MOROCCO, paragraphs on *History*.) It was necessary, he said, that Algeria should have an outlet to the Atlantic through her zone of influence in Morocco, and that she must make haste or the central route, that is from Ujda to Rabat by way of Taza and Fez, would be lost, and that Taza was to France what Fashoda was to England in Upper Egypt. For this indiscretion he was temporarily deprived of his command and placed on the unemployed list. Negotiations with the Sultan for settlement of points at issue dragged along through the last half of the year. On August 14 the French government informed the Sultan's representatives that it would evacuate the Shawia region and Casablanca as soon as the Maghzen organized an effective force for the policing of those regions and a police service on the Algero-Moroccan border, and paid its debts and reimbursed the cost of the French military operations. In the course of a debate on the Moroccan question which began on November 23, M. Pichon referred to the perfect accord between France and Spain and the latter's complete justification for her action at Melilla; and gave warning to the Sultan that he must not violate the terms of the Act of Algéciras, and that while France would remain loyal to its decisions and abstain from military enterprises she would not relinquish her hold on the Shawia and Casablanca without satisfactory assurance that her claims would be satisfied. The negotiations had gone on long enough. The Chamber voted confidence—433 to 68.

FRANCO-GERMAN AGREEMENT. The agreement between France and Germany in regard to Morocco was signed on February 9. Its purport was as follows:

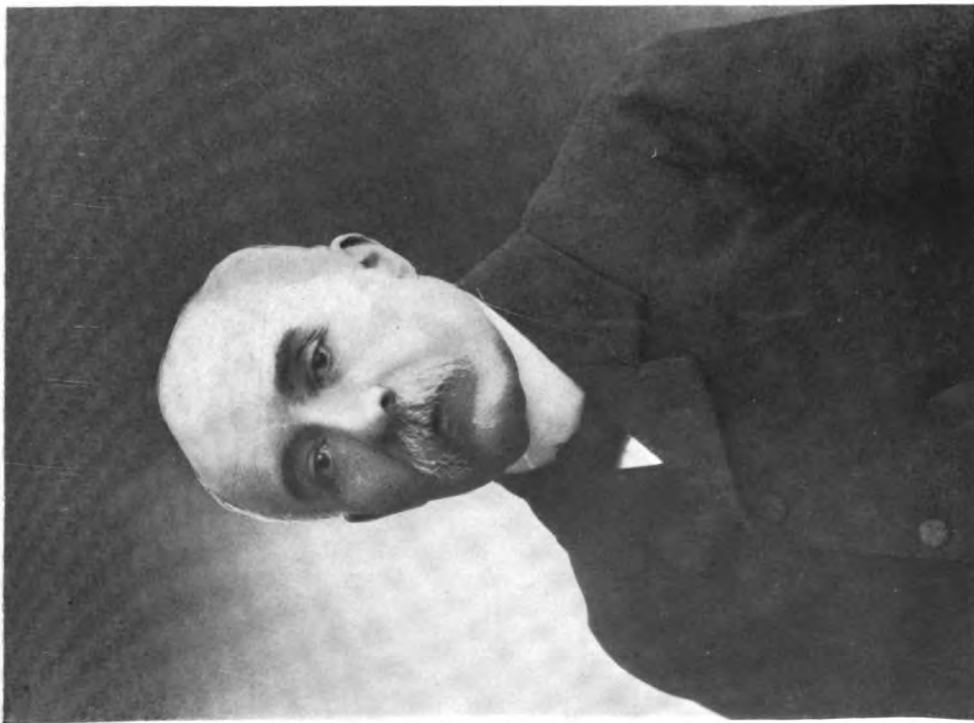
"The government of the French Republic and the Imperial government of Germany animated equally by a desire to facilitate the execution of the Act of Algéciras, have agreed to indicate precisely the meaning they attach to its clauses with a view to avoiding all cause of misunderstanding between them in the future.

"Therefore the government of the French Republic, completely bound to the maintenance of the integrity and independence of the Sherifian Empire and resolved to safeguard economic equality and in consequence not to impede German commercial and industrial interests therein,

"And the German Imperial government seeking only economic interests in Morocco, recognizing on the other hand that the political interests of France therein are closely bound up with the maintenance of order and internal peace, and being therefore resolved not to hamper these interests,

"Declare that they will not take or encourage any measure of a sort to establish an economic privilege in their favor or in favor of any Power whatsoever, and that they will endeavor to associate their nationals in business enterprises of which they may obtain the concession."

The agreement was well received in both France and Germany. In France it was taken as an assurance that Germany would desist



Courtesy of the "Review of Reviews"

GEORGES CLEMENCEAU
Retiring Premier



Courtesy of the "Review of Reviews"

ARISTIDE BRIAND
Premier of France, 1909

FRANCE

from her irritating diplomatic tactics of the past four years. Great resentment had been felt in France at what seemed to be a deliberate intent on Germany's part to embarrass France in her Moroccan policy. No move had been made by her without a display of ill-feeling in Germany, and fear of German hostility had caused France to make mistakes and neglect opportunities. There was considerable comment on the clause providing for economic coöperation. This was, however, only a reasonable concession to Germany under the circumstances, according to French opinion, for France had gained much in securing from Germany the admission of French political interests in Morocco to which she had hitherto demurred. Moreover, there was no reason why the two countries should not be associated in such enterprises as might be made the subject of concession. There had been such coöperation in the Ouenza enterprise. In criticism of this clause it was remarked that no such arrangement was included in the Anglo-French accord of 1904, and that economic equality was not extended to all the nations. On February 16 the Kaiser telegraphed his satisfaction with the agreement to the German ambassador in Paris. On May 22 the Hague Tribunal rendered its arbitral judgment in the affair of the Casablanca deserters. The difficulty had arisen, it will be remembered, in 1908, when some of the soldiers of the Foreign Legion, including three Germans, were arrested by the French gendarmes. Employees of the German consulate in Casablanca resisted this arrest, and a struggle took place between them and the gendarmes. Later the German consulate demanded the release of the three Germans. When the affair came to the notice of the governments concerned, the French government immediately made it known that it was ready to submit the case to the Hague Tribunal. Germany, however, demanded from France an expression of regret before the case was submitted for arbitration. France refused this, but proposed a simultaneous expression of regret by both governments, which was accepted by Germany, and the protocol for arbitration was signed in Berlin on November 24, 1908. The arbitral award decided the theoretical questions in favor of France. In general it held that the consular jurisdiction did not extend over the men of the consul's nation who were serving in a foreign army occupying the consular district, that is to say, the French Foreign Legion. On the other hand the course of the French gendarmes was blamed as too summary, and it was held that a less offensive means of withstanding the German consul's excess of his authority should have been employed. This decision satisfactorily terminated the matter. The French government showed its good will by pardoning the deserters in July. See **ARBITRATION, INTERNATIONAL**.

The award was criticized in certain quarters as offering a compromise rather than settling definitely and decisively a question of international law. It put an end, however, to a quarrel which a few months before had dangerously exasperated public opinion in the two countries.

POSTMEN'S STRIKES. By far the most important question in internal politics during the year arose from the strike of civil servants against the government. Two of these

strikes occurred among the postal telegraph and telephone employees. The first was declared on March 13.

On March 12, 300 employees in the postal service entered the central offices of the Paris Telegraph Department to declare their disapproval of M. Simyan, the Under-Secretary of State for Posts and Telegraphs. The removal of M. Simyan was demanded. On March 13, about 1200 men in the Telegraph Department went on strike as a protest against the administration of M. Simyan and as a proof of sympathy with the men who had made the demonstration the day before. From Paris the strike spread to other centres, and the confusion in the postal departments was at first very serious. On March 17, it was estimated that 3,000,000 letters were awaiting delivery in Paris, and for a whole week France was virtually without a postal system. The telegraph service was also interrupted, and for a time telegraphic communication with London practically ceased. The chief grievance had been the decision of the Ministry as to the promotion of civil servants in the postal department. The main question involved in the affair, was the right of civil servants to form trade unions and go on strike. Hitherto Parliament had left this question to the Ministry, which had always held that nothing like trade union action could be allowed to civil servants. The limits of the latter's rights, however, were not fixed precisely, and a bill as to their status was at this time before the Chamber. The specific demands of the strikers were that the Under-Secretary, M. Simyan, who had made himself especially obnoxious to them, should resign, and that after the strike no one who had participated in it should be punished or disciplined. The strike ended on March 23. The strikers felt that they had won the victory, the government having agreed not to punish strike offenses, and having made certain promises which the strikers interpreted in their favor. They believed that M. Simyan would soon resign, although the Ministry merely left the question of his status to Parliament. On March 30 M. Simyan explained his course to the Chamber and received a vote of confidence, 417 to 67. The postmen promised to await patiently the redress of their grievances. They soon threatened, however, to begin a new strike unless M. Simyan was dismissed. The government was inclined to change M. Simyan's status from Under-Secretary of State in the Ministry of Posts and Telegraphs, to that of a Minister responsible to Parliament, but it wished to make the change in its own time and not under compulsion. The postmen now declared that they would present their ultimatum to M. Clemenceau, but the latter refused to receive them. At a large meeting of workmen, including some civil servants organized by the General Confederation of Labor, and held at the Hippodrome on April 4, a resolution was passed asserting the unity of the interests between government employees and the proletariat. When the new strike was under discussion a meeting of railway employees in Paris declared that they would support the postmen if they went on strike. Meanwhile, on May 3, fifty-three post-office employees were dismissed for making revolutionary speeches, and on May 8 seven postmen, who had been suspended from duty, were summoned before the disciplinary court. This led to a Socialist interpellation in the Chamber, where the government defended its

course. The discussion was not finished, however, and was deferred to the 13th. Meanwhile, on May 11, the postmen, angered by the hostility shown to their cause by the Chamber during the debate, declared a general strike. On May 13, the Chamber resumed its debate on the dismissal of the postmen. M. Jaurès accused the government of breaking its promise to dismiss M. Simyan, and of dismissing some of the postmen for a mere expression of opinion. M. Barthou, on behalf of the Ministry, declared that the postmen to whom M. Jaurès referred had abused the privilege of speech and M. Clemenceau attacked M. Jaurès for encouraging the revolutionary element. The Chamber voted confidence in the government, declaring that civil servants had no right to strike. From the first the strike showed no such proportions as had been expected by the postmen, and as early as May 15 it was manifestly on the decline. As soon as the strike was declared, the government dismissed 228 employees, and on May 15 it dismissed 313 more. During the previous strike, owing to the enterprise of the government and of private business men, a fairly good postal service was improvised. The Chambers of Commerce had set up post-offices of their own, and a government officer was placed in charge of the cancelling of stamps. Special associations of commerce set up branch post-offices and business men supplied their own employees for postal service. The government and the Chambers of Commerce were fully prepared for the May strike. The Chambers of Commerce had provided a postal service of their own employees, and the employers' unions were ready to assist. A large number of automobiles were ready to carry the mails. During the May strike the Paris Chamber of Commerce handled about 200,000 letters a day for eight days. During the March strike public sympathy had been largely with the strikers. This was not true of the May strike, which from the start was almost a complete failure. There were some acts of violence and many telegraph and telephone wires were cut. Only 1500 to 2000 men, however, out of 26,000 employees, left work. Although the General Confederation of Labor came to the postmen's assistance with a proclamation of a general strike on May 18, it was too late. The Confederation's proclamation had slight effect, for the strike was then practically over. Realizing this the Confederation ordered a return to work on May 21. A Socialist resolution for amnesty to the postmen dismissed during the strike, was lost by 338 to 141 (May 28). The government, however, finally reinstated them, which led to criticism in the Chamber in August. The government's reply to this was that they had taken back only those whom their chiefs recommended.

IMPORTANT ISSUES INVOLVED. The May strike was less effective than the strike in March, but more revolutionary in tendency, showing an advance in the programme of syndicalism. The civil servants had real grievances to complain of. The chief of these was the activity of politicians in civil service, as under the American "spoils system." There were evidences of favoritism, irregular promotion, and other abuses. The servants of the state included among them school teachers, workmen in the state arsenals and factories and on state railways, and numbered more than a million voters. Although the right to strike was denied in

theory, unions had actually been formed among these civil servants as in private industries, and this policy had been encouraged under republican ministers. As a matter of fact, the May strike was actually the fourth strike attempted by civil servants. The logical result of this would be syndicalism, that is to say, government by the unions, and this was the great menace of the country at the time. A "statute of functionaries" was drawn up and laid before Parliament with the design of doing away with the abuses which the postmen complained of, and of protecting their essential interests against politicians. The chief representative institution of syndicalism in France was the General Confederation of Labor which thus far had not allied itself with the Socialists. (See **SOCIALISM**.) The working class numbered about 9,000,000, and of these only 900,000 were organized, 300,000 were in the 2500 unions affiliated with the General Confederation, and about 100,000 were classed as revolutionaries. The specific grievances of the postmen had to do with the delay in the normal promotion as the result of certain new measures on the part of the authorities, and also with certain acts of favoritism. In the debates during the March strike, the government took its stand on the principle that a civil servants' strike was inadmissible, and the Chamber resolved that such a strike was not to be endured and expressed its confidence that the government would restore peace in the service. The government also declared that there had been no favoritism shown in the service. During the whole affair the Chamber repeatedly voted confidence, and on July 15 rejected by a vote of 284 to 177, an amendment offered for the purpose of securing the reinstatement of the civil servants dismissed during the strike. There was, however, evidence of great dissatisfaction throughout the country with the political abuses in the service, especially the matter of patronage. The trade unions urged the civil servants not to trust Parliament's promises and to reject the proposed law as to the status of functionaries. The extremists among the postmen's associations were in communication with the Confederation of Labor, but the rank and file were not fully decided in favor of syndicalism. At the end of November it was announced that associations representing over 180,000 civil servants had decided to form a national federation. See **STRIKES AND LOCKOUTS**.

CRITICISM OF THE NAVAL ADMINISTRATION. During the first part of the year the press teemed with complaints of irregularities and inefficiency in the naval department. It was said that the criticism of Admiral Germinet as to the lack of readiness for war which had caused his reprimand in December, 1908, was well founded. On March 25 on the discussion of the credit of 30,000,000 fr. asked for by the government for the Marine, M. Delcassé criticised the government's use of naval appropriations in recent years and demanded a Naval Commission of Inquiry. Such a Commission was voted, to consist of thirty-three members, and the appointment was made in April. The Naval Commission had its headquarters at Toulon and was under the presidency of M. Delcassé. Anticipating the report of the Commission, M. Doumer published articles on the demoralization of the fleet in which he said it was without "men, guns, or projectiles," that

15,000 ton battleships of the *Patrie* type had not carried their full complement, and that one of them, which had been in commission for nearly a year, had not fired a shot, being unable to get ammunition. At the end of June the report of the Commission was published. It condemned the practice of sanctioning the building of ships before the plans had been decided on. It referred to hundreds of alterations that were made in the original contracts for the six vessels of the *Danton* type. It blamed the successive ministries for their lamentable failure to secure competitive bids for boilers, for lack of diligence and foresight in allowing the steel shell ammunition to fall short, for negligence in failing to put through the programme for the modernization of the ports and dock yards, except in a few particulars, and the almost complete failure to provide docking facilities for the new large battleships. The Chamber was asked for a vote of censure. The report further declared that the arsenals were not in readiness to carry out the work of construction and repair fast enough, that lower prices would be secured if contractors were not obliged to assume risks, and in general that the system showed too high a degree of centralization. The Commission urged that many matters requiring prompt attention should be decided by the commanders-in-chief and the maritime prefects. It recommended that the central body be reorganized and that the head of each department should execute the measures agreed upon under the general supervision of the Minister of Marine. Meanwhile the newspaper criticism continued. The Comptroller-General complained of carelessness in the supervision of food supplies, and in April it was reported that petty officers of the naval commissariat and a contractor had been arrested for supplying food of inferior quality. There were conflicting reports as to the plans for an enlarged navy. One *Dreadnought*, that is to say, a warship of the *Danton* type, was launched in January. Two others were launched in April, and three more were on the stocks. It was reported in the newspapers that the plans for increasing the navy contemplated 45 ships of the line, 12 scout cruisers, 60 large destroyers, and 64 submarines, to be ready by 1920. The cost of building the armored vessels, which were to be completed within the next ten years, was estimated at \$600,000,000.

MINISTERIAL CRISIS. The Clemenceau Ministry, which had held office longer than any other under the Third Republic, came to an end in consequence of these criticisms and exposures. A debate began in the Chamber on the reading of the report, and finally on July 20, M. Picard, the Minister of Marine, made a speech explaining the government's course. M. Delcassé, president of the Naval Commission, sharply censured the ministries of the last few years as responsible for the present conditions in the navy. In a bitter debate which followed between him and M. Clemenceau, the latter remarked on the inappropriateness of such an attack coming from the man who had brought the country to the humiliation of Algeiras without means of defense, and M. Delcassé in reply defended his course, pointing to the agreements with Spain, Italy and England as a result of his policy, and condemning Clemenceau in turn as the president of a former Naval Commission,

who had nevertheless permitted these abuses to develop. He also declared that it was not he who ought to be ashamed of Algeiras, but the persons whose relentless criticism had so frightened the country that it had yielded to the commands of another Power. There was much excitement in the Chamber, and finally on the question of confidence, the vote stood 212 to 176 against the government, which thereupon resigned. Many of the deputies had gone for the holidays, and out of the 591 only 388 voted, 175 being absent on leave. The defeat was interpreted as a personal overthrow of Clemenceau rather than a condemnation of the government's policy.

THE NEW MINISTRY. A new ministry was formed, known as the Ministry of "Republican Conciliation," under the premiership of M. Briand, President of the Council, and Minister of the Interior and of Public Worship. Five members of the old Ministry were retained in the new, namely, M. Viviani (Labor), M. Pichon (Foreign Affairs), M. Barthou (Justice), M. Doumergue (Public Instruction and the Fine Arts), and M. Ruau (Agriculture). (See above, paragraph on *Government*.) To the new Chamber, which met on July 27, the new Ministry declared that its programme rested on the principles of "peace, reform, and progress," fidelity to existing alliances, and the furtherance of naval reorganization. As to specific measures, it referred to workmen's pensions, the income tax, the statute of functionaries, and tariff revision. The Chamber voted confidence by 306 to 46.

In August the new Minister of Marine announced that he was preparing a law for the reconstruction of the French navy. He declared that he personally was in favor of the creation of five squadrons, each with eight units, that he did not favor armored cruisers and would order their construction suspended, but that he did approve of torpedo boats and submarines. He also declared that he would put an end to the practice of detailing sailors to miscellaneous shore duties instead of keeping them on board ship. In the same month changes were made in the distribution of the fleet. The vessels in Moroccan waters were to constitute a single division. A single division was also to be formed out of the vessels in the Far East and the Pacific, and the Mediterranean and Northern Squadrons were to be known respectively as the First and Second Squadrons.

PARLIAMENT. Partial elections to the Senate were held on January 3. They comprised thirty-two departments. The general results were favorable to the Radical government. Sixty Radicals and Radical Socialists were returned, 27 Republicans of the Left, 9 Progressists, 5 Conservatives, and 2 Independent Socialists. The elections in 15 constituencies, early in March, returned to the Chamber 4 Radicals, 1 Republican Socialist and 1 Independent Socialist. There were signs of Socialist gains throughout the country. Parliament met on January 12 and M. Brisson was elected president. The most important debates in January were on the amnesty bill, the income tax, and on the interpellation of the government by Mr. Jaurès in regard to Morocco, which is described in a preceding paragraph. The amnesty bill concerned the granting of pardon to the workmen arrested on account of the strike riots of September, 1908. The Conserva-

tives demanded amendments granting amnesty to reactionaries, and the Left contended for amendments extending it to anarchists and antimilitarists, but the amendments were rejected and the bill was passed by 470 to 6. The debates on the income tax were resumed on January 19. Progress on it had been and continued to be slow. In two years only 53 of the 97 clauses had passed. Clause 64 concerned the taxation of foreigners, and was discussed on February 2, and the Minister of Finance, M. Cailleaux, agreed to a reduction of income for foreigners residing in France, from ten to seven times the rental. On March 9 the income tax bill passed the Chamber by a vote of 406 to 166. On behalf of it it was said that it reduced the burden on small land owners and small shopkeepers, and did away with a number of antiquated and burdensome taxes, such as the taxes on doors and windows. Day laborers were to be exempt and the tax on incomes over 5000 francs was to be progressive up to 4 per cent. Foreign residents were to be taxed four times as heavily as before, their incomes being estimated at seven times their annual rental. There was no chance of its passing the Senate in its present form. The tariff question came up before Parliament early in the year. (See article *TARIFF*.) The Customs Committee proposed an increase on between 800 and 900 classes of imports. This caused some uneasiness in foreign countries, to allay which it was said on behalf of these changes that they would impose a surcharge on foreign goods of only \$5,000,000, which, owing to changes in foreign tariffs since 1892, the surcharge on French exports was nearly \$10,000,000. Early in March it was announced, after a conference between the Customs Committee and the Ministry, that the new scale would impose on British imports a surcharge of only 4 per cent., and would not affect 87 per cent. of the classes of goods imported, and that, as regarded other countries, the new tariff scale levied only half of the additional duties which those countries had by their tariff changes imposed on French exports. In the course of a tariff debate, which began on June 28, it was urged in favor of revision that it was a necessary measure of self-defense, that Germany was evading the Treaty of Frankfurt, which accorded the French the most favored nation treatment, and that during the last three years, while French exports to Germany were declining, German exports to France had considerably increased. On October 16, at a meeting of the Cabinet, M. Dupuy, Minister of Commerce, urged the acceptance of the Chamber's Customs Committee's proposals, which would tend to bring the duties on certain articles down to date, but the rejection of some of the proposed increases. The subject was still under discussion when the new Ministry came into power. For nearly two years a committee of the Senate had been engaged on the Chamber's Workmen's Pension bill, and in February it offered a substitute measure. This proposed a pension of 120 francs for members of the working classes 65 years of age or more, to be provided by employers, who were to pay annually 9 francs for every employee over 18 years of age, and 4 francs 50c. for those under. It also provided for an old age pension system, based on monthly payments by employers and employed, as a result of which workmen

would receive considerably more than they paid in. (See *OLD AGE PENSIONS*.) The amount to be paid in annually was three francs between the ages of 15 and 18, and from that time on six francs. A Railway Servants' Pension bill was also passed fixing the age limits of the traveling staff, the station staff and the administration employees at 50, 55 and 60 years, respectively. The Statute of Functionaries submitted by the government guaranteed the promotion of civil servants without the interference of political influence, and permitted state employees to form unions, but not a confederation which should include different departments.

The new Ship Subsidies bill was introduced and debated on June 2. It sanctioned the agreement of the government with the Messageries Maritimes, whereby the state guaranteed new loans of capital for construction, and reserved in return the right to share in the profits under certain conditions. This was opposed by the Chamber as a menace to private shipping, and in July the question of a convention with the Messageries Maritimes was referred by the Chamber to the Budget Committee, after a resolution was passed, declaring that companies applying for subsidies must be under state financial control, must give the state a share in the profits, and must be subsidized in proportion to earnings. The Senate granted the amnesty for strike offenses in June. During the same month the budget was presented.

To meet the deficit for 1910 new taxation and short term bills were proposed. But the proposals of the new Ministry which were made known in September were more radical. They looked to the raising of the whole amount by new taxes.

On October 2 the Chamber began the discussion of proposals of electoral reform submitted by members. The government was disinclined to initiate any sweeping measure of proportional representation, but was said to be considering the introduction of a bill for proportional representation in elections for municipal councils in towns of more than 50,000. In the following month an attempt to overthrow the government on the question of the new taxation proposed in the budget was checked by the prompt demand of M. Briand of a vote of confidence, which was granted.

On November 8 the Chamber accepted the principle of the *scrutin de liste*, and of proportional representation as embodied in the first clause of the electoral reform bill, but upon the threat of the Ministry to resign if the discussion of the measure continued, the assembly voted against the clause. The electoral question was prominent at the close of the year, which turned on the relative merits of the two electoral systems, the *scrutin de liste* and the *scrutin d'arrondissement*, the latter system being the one that now prevails. This divides each department into single member districts or *arrondissements*, and each voter votes for the single candidate of his district. Under the former system of the *liste*, the voter cast his ballot for all the candidates of the department. This system prevailed in 1871-1876 and in 1885-1889.

RELATIONS WITH THE CHURCH. Some Catholic criticism was occasioned by the appointment on March 2 of the Abbé Loisy to the Chair of Religions at the Collège de France, which was

formerly occupied by M. Réville. Cardinal Andrieu and other prelates were fined for condemning the use of certain text-books in the schools or for attacking the government in their public addresses. Early in September the Roman Catholic deputy, Abbé Gayraud, interpellated the government on its policy toward the Catholics. This threatened to bring up the question between the Church and the state in the autumn session. Toward the end of the month, M. Briand attended, contrary to the practice of Republican ministers hitherto, the funeral services of the victims of the *République* disaster at the Versailles, which was taken as a sign of a conciliatory attitude; but in October the archbishop and bishops of France issued a pastoral letter in regard to the schools which lamented the disappearance of the free schools in which Christianity was taught, and told the people that it was their right and duty to choose such schools as gave the religious instruction which they desired for their children. The public schools or so-called neutral schools excluded religious training, and this in the opinion of the ecclesiastics discredited religion. In his speech of October 10 M. Briand declared the government policy to be one of conciliation and tolerance, and he said that the government had assured the Church of sufficient funds for the clergy and public worship in spite of the obstinacy of the Church authorities, which had prevented them from gaining full possession of the endowments. The Archbishop of Toulouse demanded the complete restoration of religious teaching in the schools. In his reply to the Church manifesto as to the schools, M. Briand declared that the government had taken effective measures to defend the neutral schools, but that the best defense came from the teachers themselves and from the French spirit of national independence, which would resent this attack on the school system, inspired by a foreign power. On November 18 the Pope in an address to the French pilgrims attacked the French government for its persecutions of Catholicism as shown by its proceedings against Bishop Andrieu and other bishops, by the state monopoly of schools and by the threatened legislation to insure the protection of irreligious teachers.

OTHER EVENTS. Serious disturbances arose in the Department of Oise in consequence of the strike of the button makers. The labor demonstrations of May Day passed off without serious disorder. On the occasion of the May strike, the Railwaymen's Union of France, and the Colonies, threatened to strike if the old age pensions measure was not passed, and a strike occurred on the Corsican railways. In consequence of a seamen's strike on May 24, six mail steamers were unable to sail for Tunis and Algiers. For a time there was a risk of stopping the movement of the greater part of the merchant marine. Later, however, the trouble subsided. In June a strike riot occurred at the race meeting at Auteuil, occasioned by the Stable Boys' Union, which had been formed in affiliation with the General Confederation of Labor, and some of the buildings were burned. At the end of June the seamen's strike in the merchant marine came to an end, but there were threats of its resumption. On March 30 the treaty with Canada was under discussion in the Senate. In May the Beatification of Joan of Arc was celebrated at Com-

piègne with effective pageants. The fiftieth anniversary of Mistral's *Mireille* was celebrated at Arles, beginning with torchlight processions on May 28. Features of the affair were the unveiling of the poet's statue, a speech by Mistral himself, and the founding of a Provençal museum out of Mistral's Nobel prize money. The Carnegie gift of \$1,000,000 for French heroes was accepted by the government, which announced that it should be called the Carnegie Foundation. An earthquake occurred on the night of June 11. It extended over a wide area, including all the French Mediterranean coast and was felt in Spain and Portugal. It was most severely felt at Bouches-du-Rhône. Fifty-five persons were reported killed, and the village of Saint Cannat was destroyed. M. Bompard, formerly Ambassador at St. Petersburg, was appointed to succeed M. Constans at Constantinople in June. The Nancy exhibition was opened by M. Barthou, the Minister of Public Works, on June 19. The bicentenary of Malplaquet was celebrated on September 12 by leading French citizens, and a memorial column of stone made by the sculptor Theunissen, engraved with flags and the portrait of Villars, was erected. Disturbances occurred at Hazebrouck in the Department of the Nord, and a workingman's house was wrecked. In April the button strike was arbitrated, but without avail, and by the end of the month it became general. In his speech at the unveiling of the Gambetta statue at Nice on April 25, M. Clemenceau referred to the nation's peril in the present emergency and said that France would perish if she allowed public servants to interrupt its service by acts of violence. The General Confederation of Labor, under the influence of its revolutionary element, appointed August 30 for an anti-militarist congress. The anti-militarist movement appeared to be gaining strength, and as proof of its effectiveness, the fact was cited that the number of young soldiers who failed to join the colors increased from 4567 in 1906, to 11,782. This was attributed to the agitation in large towns where the General Confederation of Labor had distributed among the troops many thousands of anti-militarist pamphlets. There were many complaints of espionage in the latter part of the year. These cases were under investigation early in September. Swarms of spies were said to infest the eastern and frontier districts. It was suspected that the recent theft of a machine gun could be traced to German sources, and that the gun was actually in the possession of German military authorities.

The bad condition of the Paris streets, owing to the slackening of the work of improvement and of repaving, was the subject of much complaint, as was also the condition of the telephone service. M. Millerand, the new Minister of Public Works, declared his intention to reform the Paris telephone service. In the summer the Duke of Orleans started on the *Belgica* for the coast of Greenland, to continue his soundings of 1905. The King of Italy was chosen as arbitrator in the dispute between France and Mexico, as to the sovereignty of the Clipperton Islands. The Czar, who visited Cherbourg on July 31, was cordially received and presents and compliments were interchanged. The deserters from the Foreign Legion at Casablanca were tried and

found guilty, but pardoned. French colonial expansion in Africa was illustrated by the successful military operations at Adrar which added to the prestige already gained by the French arms in that region, by the capture of the capital of the Wadai district. The execution of Professor Ferrer (q. v.) by the Spanish government, occasioned much agitation in France (see SPAIN, paragraphs on *History*), and a serious riot occurred in the neighborhood of the Spanish Embassy, in reply to an interpellation of the government, on the subject of Professor Ferrer, by the Socialists, M. Pichon, the Foreign Minister, declared that the execution was purely a domestic concern of the Spanish government, and that France had no right to interfere.

During the latter part of the year public attention was drawn to the very sensational murder trial of Mme. Steinheil, charged with the killing of her husband and mother in May, 1908. It was held before the Assize Court in November, and resulted in acquittal. The case was of especial importance in calling attention to the need of reforming French judicial procedure. The Council of Ministers on November 25, signed a decree for an extra-Parliamentary Commission to study the question of reform. M. Barthou, in his report to President Fallières declared judicial procedure out of date, complicated, and ill-adapted to the discovery of truth. The commission, which began its sittings November 27, drafted a measure for submission to the Chamber. It proved that a preliminary statement of the charge should be made by the public prosecutor, proposed the abolition of cross examination by the presiding judge, and drew up rules as to the examination of witnesses in

court. For an account of the Socialist movement in France, see SOCIALISM. For a description of the French colonial possessions, see separate articles under their respective titles. See also ARBITRATION, INTERNATIONAL; STRIKES AND LOCKOUTS; TARIFF; FRENCH LITERATURE; STOCK RAISING; DRAMA; PAINTING; SCULPTURE; AERONAUTICS; and the various articles on industries.

FRANKLIN, SAMUEL RHOADS. A rear-admiral (retired) of the United States navy, died February 24, 1909. He was born in York, Pa., in 1825, and was appointed midshipman in 1841. He served throughout the Civil War, and took part in many important engagements, including the bombardment of the forts at Sewall's Point. In 1863 he was fleet captain of the West Gulf blockading squadron, and he took part in the naval operations in Mobile Bay in 1865. He was made captain in 1872, commander in 1880, and rear-admiral in 1885. He was superintendent of the United States Naval Observatory in 1884-5, and commander-in-chief of the European station 1885-7. In the latter year he retired after forty-six years of service, most of which were spent at sea.

FRATERNAL ORGANIZATIONS. A title applied to those secret societies which maintain a death, sickness, or accident fund for their members. Many of these societies are under the surveillance of the State insurance departments, which exact from the governing bodies such statistical information as tends to check betrayal of trust. The following are the principal organizations of the kind in the United States:

	Date of foundation	Member- ship
Ben Hur, Tribe of.....	1894	107,903
B'nai B'rith, Independent Order of.....	1843	35,164
B'rith Abraham Order.....	1859	30,283
Brotherhood of American Yeomen.....	1897	104,175
Catholic Benevolent Legion.....	1881	17,479
Catholic Knights of America.....	1877	19,000
Catholic Mutual Benefit Association.....	1876	60,267
Court of Honor.....	1895	64,224
Druids, United Ancient Order of.....	1781	30,510
Eagles, Order of.....	1889	312,847
Elks, Benevolent and Protective Order of.....	1868	304,839
Foresters, Ancient Order of.....	1836	41,116
Foresters of America.....	1864	231,366
Foresters, Independent Order of.....	1874	239,716
Fraternal Brotherhood.....	1896	42,000
Fraternal Union of America.....	1896	29,080
Golden Cross, United Order of.....	1876	18,250
Heptasophs, Improved Order of.....	1878	76,787
Hibernians of America, Ancient Order of.....	1836	250,000
Irish Catholic Benevolent Union.....	1869	14,785
Knights and Ladies of Honor.....	1877	91,000
Knights of Columbus.....	1882	227,723
Knights of Honor.....	1873	21,603
Knights of Malta, Ancient and Illustrious Order.....	1048	30,000
Knights of the Golden Eagle.....	1873	86,668
Knights of the Maccabees of the World.....	1883	283,998
Knights of the Modern Maccabees.....	1881	167,737
Ladies' Catholic Benevolent Association.....	1890	111,099
Ladies of the Maccabees of the World.....	1892	152,909
National Union.....	1881	62,442
New England Order of Protection.....	1887	57,137
Order of Gleaners.....	1894	60,656
Protected Home Circle.....	1886	66,340
Rechabites, Independent Order of.....	1842	491,000
Red Men, Improved Order of.....	1763	475,450
Royal League.....	1883	29,369
United American Mechanics, Order of.....	1845	31,850
United American Mechanics, Junior Order of.....	1853	201,847
United Workmen, Ancient Order of.....	1868	210,000
Woodmen of America, Fraternity of Modern.....	1883	1,952,673
Woodmen of the World.....	1890	439,265

FRENCH ACADEMY. See ACADEMY, FRENCH.

FRENCH CANALS. See CANALS.

FRENCH CONGO. A French possession (total area, 669,280 square miles; population in 1906, 10,000,000), extending along the west coast of equatorial Africa, between the Belgian Congo and the German Kamerun colony. By decree of February 15, 1906, it is divided into four circumscriptions forming three colonies: The Gabon Colony (capital Libreville), with an area of 120,745 square miles and a population of 4,000,000; the Middle Congo Colony (capital Brazzaville), area 170,255 square miles, population 3,000,000; and the Ubanzi-Shari-Chad Colony (capital, Fort-de-Possel), area (Ubanzi-Shari) 154,400 and (Chad) 223,800 square miles; population (Ubanzi-Shari) 2,000,000 and (Chad) 1,000,000. The Chad region is for some purposes administered as a territory. The natives are mostly negroes. There are fifty-three mission schools, with about 3600 pupils. The natives cultivate manioc; the Europeans, coffee, vanilla, and cacao. Valuable woods are found in the forests, as is also rubber. The Mindouli mine produced 1500 tons of chalcosine in 1906, valued at about 450,000 francs. Other minerals found are gold, copper, and iron. The imports (cotton goods, spirits, ammunition, tobacco, rice, salt, etc.) were valued in 1907 at 15,162,000 francs (France, 6,699,000 francs); the exports (ivory, rubber, cacao, coffee, ebony and other woods, gum-copal, and palm-oil), 19,594,000 francs (France, 9,216,000 francs). A railway is projected to connect Libreville with the Congo. The total length of telegraph line in operation is 870 miles. There were (1906) thirty-nine post-offices. In 1906, eighty-two vessels of 118,306 tons entered, and ninety-seven of 117,528 tons cleared, at the ports, of which Libreville is the chief. The revenue and expenditure for 1909 (general budget) balanced at 6,877,000 francs, against 6,434,985 in 1908. The estimated expenditure of France on the French Congo in 1909 was 3,502,313 francs. The debt stood at 1,706,000 francs. The military force consists of 4177, of whom 322 are Europeans. The Middle Congo Colony is governed by an administrator-in-chief, the others by lieutenant-governors, all under the control of the Commissioner-General (M. Merlin in 1909), who is assisted by a secretary-general and a council of government.

The state of Kanem, northeast of Lake Chad (capital Maô), and Wadai (capital Abeshir; area about 170,000 square miles), are included in the French Congo.

HISTORY. The government was criticised for maintaining in its Congo possessions practically the same system that Belgium was so severely blamed for maintaining in her Congo dominions. This criticism was acknowledged by those familiar with the conditions to be well founded, but assurance was given that the system would be abandoned as soon as that in the Belgian Congo disappeared. Considerable progress was made in the construction of the railway from upper Congo to the central African lakes, and it was expected that communication with Katanga would be opened by the end of next year.

FRENCH GUIANA, or CAYENNE. A French colony and penal settlement on the northeast coast of South America. Area, 34,061 square miles; population, (1906), 39,117. In

1907 the penal population numbered 6146. Capital and only seaport, Cayenne, with 12,426 inhabitants. There are twenty-four primary schools, with about 2230 pupils, and a college at Cayenne. Only about 8800 acres are under cultivation. The crops are corn, rice, manioc, cacao, coffee, sugar-cane, and tobacco. Gold-mining (placer) is the principal industry. In 1907, 139,059 ounces were declared for entry at Cayenne. Silver, iron, and phosphates are also mined. The imports and exports for 1907 were valued at 14,013,078 and 12,331,702 francs, respectively. A few roads connect the capital with the interior. There were (1906) twenty-one post-offices. A mail steamer from Martinique touches at Cayenne once a month. In 1907, 247 vessels of 46,764 tons entered at the port. The local budget for 1908 balanced at 3,497,394 francs. The expenditure of France (budget of 1909) was 6,494,523 francs, of which 6,221,800 was for the maintenance of the penal settlement. The outstanding debt (1907) was 76,000 francs. The Bank of Guiana has capital, 600,000 francs; statutory reserve fund, 300,000. The colony is administered by a governor, (M. Rodier in 1909), assisted by a privy council of five members. There is a council-general of sixteen members, and the colony is represented in the French Parliament by one deputy.

FRENCH GUINEA. A French colony in French West Africa (q. v.), lying on the coast between Portuguese Guinea and Sierra Leone. Area, 92,249 square miles; population (1906), 1,497,770. Capital, Konakry (about 7000 inhabitants), on the Isle of Tombo. There were in 1906 seventeen government schools, with 1400 pupils; and seven mission schools, with 220 pupils. The chief products are palm oil and nuts, millet, ground nuts, gum, rubber, and coffee. Futa Jallon raises cattle; Bouré and Siké produce gold (16,864 grammes, valued at 42,160 francs in 1906). Imports (1907), 16,344,215 francs; exports (mainly rubber, cattle, ground nuts), 15,989,746. Length of railways open to traffic (1908), 136 miles; under construction, 229 miles. The railway from Konakry to the Niger is nearly completed as far as Koumi—186 miles. A highway runs from Konakry to the Niger. There are 1512 miles of telegraph line. There were in 1907 31 post-offices. In 1906, 470 vessels of 474,554 tons entered, and 443 of 465,519 tons cleared at the ports. The local budget (1903) balanced at 4,036,000 francs. A lieutenant-governor (C. M. Liotard in 1909) administers the colony, under the direction of the Governor-General of French West Africa.

FRENCH INDIA. The French possessions in India have a collective area of 198 square miles, and a population, 1908, of 273,185; (1906, 277,723; 1891, 282,923). Pondicherry (area 111 square miles, population, 1908, 174,456), the chief of these dependencies, is on the Coromandel coast, 85 miles from Madras. The town of Pondicherry has 46,887 inhabitants. The fortifications—once strong, but destroyed in the war with England—must not be rebuilt, and the French are allowed to maintain a garrison sufficient only for police purposes. The minor settlements are Chandernagore (area 4 square miles, population 26,831), on the Hooghly, 17 miles from Calcutta; Karikal (area 51 square miles, population 56,595), in the Kauvery delta; Yanaon (area 9 square miles, population 5005) in the Godavery delta; and Mahé (area 23

square miles, population 10,298), on the Malabar coast. Rice and pulse are cultivated. The chief industry is cotton spinning, for which there are four mills employing about 5000 hands. In 1908 the sea-borne imports were valued at 9,989,100 francs, and the exports at 27,293,450. The chief exports are ground nuts, cotton goods, and oilcakes; the imports, raw cotton, cotton goods, seeds, and pulse. There were 30 miles of railway in 1908, connecting Pondicherry and Karikal with the South Indian Railway. In 1907 398 vessels of 782,705 tons entered, and 387 of 785,819 tons cleared at the three ports—Pondicherry, Karikal, and Mahé. The estimated revenue for 1909 amounted to 2,683,940 francs, of which 252,250 francs was contributed by France. Outstanding debt, January 1, 1907, 795,963 francs. The colony is represented in the French Parliament by one senator and one deputy. There is an elective general council. The Governor in 1909 was F. E. Leveque.

FRENCH INDO-CHINA. A French dependency in southeastern Asia, consisting of five states: Annam, Cambodia, Cochin-China, Tongking, and Laos (qq. v.). The capital is Hanoi, in Tongking (population 103,238). The collective area is estimated at about 309,979 square miles, and the population (1906), largely of the Annamite race, at 16,315,063, inclusive of about 15,500 French. The whole country is under a governor-general (1909, A. Klobukowski), assisted by a secretary-general. Each state is administered, according as it is a protectorate or a direct French colony, by a resident-superior or a lieutenant-governor. French Indo-China has been rapidly developed since 1893 by the construction of public works, by the influx of capital and enterprise, and by the reorganization of the finances. Its financial and political unity was finally established in 1898. Rice is the most important article of production; corn, pepper, silk, cotton, tea, sugar and tobacco are raised. The total output of the mines in 1907 was valued at 4,502,000 francs. The amount of coal and lignite produced was 320,000 tons; zinc ore, 6000; antimony, 310; tin and wolfram, 128; gold, 56 kilos. About one-fifth of the foreign trade is transit trade passing to and from the Yunnan treaty "port" of Mengtze through Tongking. The total imports amounted in 1908 to 287,388,425 francs; exports 244,102,325. The chief articles of export were valued in 1907 as follows: Rice, 154,416,000 francs; tin, 12,812,000; fish, 11,536,000; cotton, 11,243,000; pepper, 6,431,000; corn, 4,052,000; coal, 3,967,000; skins, 3,679,000. The principal imports are metal manufactures, cotton manufactures and yarns, jute bags, liquors, machinery, petroleum, silk goods, paper, and opium. The total length of railways open to traffic, December 31, 1908, was 809 miles, total trackage, 1084 miles; the cost of construction is estimated at 130,337,052 francs. The lines under construction or projected have a total length of about 530 miles. All the railways belong to the government. The length of telegraph lines is reported as 8438 miles, with 284 offices. There are 269 post-offices. In 1907, 2718 vessels of 2,138,319 tons entered, and 2770 of 2,142,225 cleared at the ports. There is a common budget for the whole dependency, and a separate budget for each state. The general budget, which in 1909 balanced at 75,981,400 francs, provides for military and judicial services, public works, and other matters common to the states as a whole.

The revenue is from customs, government monopolies, indirect taxes, posts and telegraphs and railways. The outstanding debt, January 1, 1907, amounted to 392,557,000 francs. There is a French Bank of Indo-China. The French budget for 1909 provided 13,209,529 francs for Cochin-China and 24,113,117 for Annam and Tongking, principally for military purposes. The military force in 1909 consisted of 12,042 Europeans and 14,492 natives. Two brigades were stationed at Tongking and one at Saigon in Cochin-China. The naval force consists of 1 armored battleship, 3 armored cruisers, 3 protected cruisers, 4 torpedo-boat destroyers, 1 armored gunboat, 12 torpedo-boats, 4 submarines, and a number of small craft, manned by about 4500 men.

HISTORY. A punitive expedition was reported at the end of January, as undertaking the suppression of the pirates which infested the Wen-te district and the restoration of order in that region. On July 25 a fight occurred with the pirates in which, according to the reports, the French having made a tactical blunder, suffered considerable loss, namely, 13 killed and 11 wounded, including a captain who died later. Afterwards the French blew up a redoubt inflicting a loss upon the rebels estimated at 25. In February the French Parliament authorized a loan of \$11,000,000 on the Yunnan Railway.

FRENCH LITERATURE. In comparing the year 1909 in French literature with the two preceding years, one realizes once more the specially close relation between social and literary life in France. While 1907 and 1908 were still echoing the great internal struggles of the Dreyfus affair and of the question of separation of Church and State with all the social problems connected indirectly with them (France's *Jeanne D'Arc*, Bourget's *L'émigré*, Frapié's *Figurantes*, etc.) the year 1909 is distinctly a year of general good will; writers endeavor rather to understand the standpoint which is not theirs than to judge it and pass condemnation. Everybody is willing to make concessions and suggest concessions. The amount of literature which is not didactic has grown; and such works written for the mere entertainment of the reader are often among the very best. Only in one domain an exception might be made: the political uneasiness in Europe has caused the patriotic note to be sounded in connection with the question of Alsace and Lorraine in several novels of a rather fighting spirit.

DRAMA. As the drama in 1909 is treated more fully under a special heading, need we only recall a few of the most important productions of the French stage. The *théâtre à thèse* is in favor of the great playwrights. Hervieu's *Connais-toi* is a plea for moral indulgence, reminding one of Molière's *Misanthrope*, except that the hero is not a ridiculous Alceste, but a really superior man, so good himself that he cannot believe in human weakness until he sees his own beloved wife threatened by sin; then he understands and forgives. H. Bataille's *Scandale* is another play with humanitarian tendencies. Devore's *Page blanche* is a warning to well-intentioned but blind parents who bring their children up in ignorance of the ways of the world. Wolf and Leroux in *Le Lys* suggest rather advanced views, i. e., that a woman who does not marry might be allowed compensation in free love. Among psychological dramas the most discussed were Trarieux's *La*

dette and A. Herman's *Trains de luxe* (a study of wealthy foreigners in Paris). Excellent comedies are Lavedan's *Sire*, Capus's *L'Oiseau blessé*, Renard's *La Bigote*, R. de Flers' *L'âne de Buridan* (a not over-intelligent young man to whom every woman takes a fancy), Bernière's *Papillon dit Lyonnais le juste* (a story of inheritance). Sensational was the famous *Arsène Lupin*, Leblanc's detective drama. Special mention must be made of R. Fanchois's *Beethoven*, a musical drama showing the musician betrayed in his love, by nature (becoming deaf) and in his family affections, but on his deathbed consoled by the apparition of his immortal daughters, the nine symphonies. Jean Richepin made a poetic drama of Demolder's exquisite *Route d'Emeraude*, a novel of Dutch life. Joan of Arc has inspired a drama to Em. Moreau, which was acted by Sarah Bernhardt. The Comédie Française has taken up Brioux's *Robe rouge* (1901). Verhaeren has published his two dramas, *Philippe II.* and *Le Cloître*. The whole world has mourned the death of Coquelin Aîné (January 22) and of Coquelin Cadet (February 8).

POETRY. There has been some good and original fanciful poetry, for instance, *Cent ballades* by Jaubert, a lively revival of the old ballad of Villon and La Fontaine, or P. Courtois's *De l'aurore au clair de lune*, in which appear all the popular characters of French songs, Pierrot, Marlborough, Cadet-Roussel, Polichinelle, Pandore, La Palisse, etc. In general, however, the poets were in earnest moods. We note a decidedly ethical, even Cornelian attitude towards life, meant evidently as a reaction against the Nietzschean attitude. A. Droin's *Le collier d'Emeraude* and V. E. Michelet's *L'espoir merveilleux* both praise strength and energy, not in order to crush the weak, however, but to fight our lower passions. A. Delacour, in *Le bon de soi*, preaches the virtue of self-sacrifice, especially in family life; marriage ought to be a means to rear children, not a mere means of egoistic happiness for parents. E. Hollande, the excellent poet in *La vie passe*, combines poems destined to bring comfort to those struck hard by destiny, with poems of dignified resignation in the style of Vigny. An original attempt is made by E. Blémond, in his *Beaux rêves* to express poetically and mythologically the dreams of the praises of people; as the warlike nations have created gods that express their aspirations, or as agricultural people, like the peasants of Russia, have given to their saints a specific character, so our workingmen classes ought to inspire a new folklore to modern poets; call it superstition or imagination, the popular mind delights in creating poetical legends; the poet must beg to express them.

A clever and amusing skirmish between progressives and conservatives in the realm of poetry ought to be mentioned. The editor of the international review *Poesia*, in Milan, M. Marinetti, publishes a manifest "d'une violence culbutante et incendiaire" (they are his own words) in favor of up to date poetry; he will sing the noisy modern railroads and "les gares gloutonnes avaleuses de serpents qui fument," the "automobile rugissante qui a l'air de courir sur de la mitraille," the somersault, fighting in all its forms, including "la giffle et le coup de poing," victories that will be greater than the victory of Samothrace; he sings *Futurism*.

When the Paris *Figaro* reproduced this exciting document, poets were aroused and protested, Mistral among others. The best retort is that by the French review *Poésie* in Toulouse opposing *Primitivism* to *Futurism*, i. e., the beauty from the earliest time of human history, as well as modern beauty. This counter-manifest is well worth reading.

So far the movement called "regionalism," i. e., protest against the idea that Paris alone could inspire literature, was confined to novel-writing. This year we have it in poetry, not only in such volumes as Verhaeren's *Villes à pignons* (Toute la Flandre), but in collections like Van Bever's *Poètes du Terroir*, Veran and Gaubert's *Anthologie de l'amour provençal*, and Jean Amade's *Anthologie catalane*.

Among the increasing number of women poets, no new original talent has been revealed. Mme. Delarue Madrus sings in *La figure de Proue*, the proud Normans sailing south, and finding among those conquered by them the revelation of a world of the mind and of art. Mmes. de Sormion in *Vie triomphante*, Dortzal in *Le jardin des dieux*, and Barratin in *Heures de brume*, all could adopt as motto the latter's line "Sois la grande croyante et la grande ouvrière." Mme. Picard's *La Fresque* is a belated production in the style of early symbolism. Three poets who were at one time stars of the Parnassian School, died: C. Mendès (by a railroad accident); A. Méral (by suicide), and Jean Lahor. Léon Dierx, elected a few years ago by his colleagues in France "Prince des poètes," for thirty years a modest clerk at the Ministry of Public Instruction, has now retired on a pension of \$240 a year.

THE NOVEL. It is here especially that the large output referred to at the beginning is noticeable; there was, however, no sensational success. Discrimination and classification is no easy matter; still let us try: Among the novels of the ordinary type, but which are above the average value in point of art, one may quote: R. Bazin's *Mariage de Mlle. Ginnel*, *dactylographe*, and Lichtenberger's *Un drame de cœur*. The latter has also *Petite*, one of those child stories that made his reputation. Of the so-called psychological novels, probably the most admired by connoisseurs has been A. Gide's *La Porte étroite*. It could be defined as story of protestant love asceticism. Two young people, sincere, earnest, with the highest aspirations, bring about their own unhappiness by this very excess of conscience; they consider that not happiness but sanctity is the goal of life, and they torture themselves atrociously, until finally the girl pretends that she does not love and then dies of her sacrifice, while the young man learns of her saintly deceit, after her death, by a diary. Paul Margueritte's *La flamme* relates the agony of a man who sees his dearly beloved wife gradually yielding to nervous prostration; both her and his tortures are minutely described, and how in his deep need of human affection, the man seeks consolation elsewhere, but in vain. Romain Roland's *Antoinette* is the story of a touching devotion of a sister to her brother. The strongest naturalistic novel is J. H. Rosny's *Marthe Baraquin*, a girl in a large city's slums, struggling against the worst, the most hopeless of nauseating conditions. The end is less gloomy than in other novels from the same pen. Let us now come to the very numerous "romans à thèse." Marcel Prévost

in *Pierre et Thérèse* discusses the ethics of the modern business man who considers the law an impediment to the free development of his individuality and therefore feels no remorse in breaking it. His wife, Thérèse, an excellent woman, with a mind not broad enough to view things in this light, does feel remorse, but is overawed by the prestige of the powerful man. Géniaux, in *Forces de la vie* offers a somewhat similar case. Two men with modern ideas establish a flourishing industry in Bretagne, face to face to the Celtic monuments, respected with a sort of superstition as the sacred witnesses of a past which one ought not to violate. In spite of the vigorous opposition of bigot peasants and sentimental artists they succeed. . . .

The vigorous dialectic of the author will render somewhat uneasy those who think that, in Europe, only the past has a right to existence. C. Nisson's *Cadet* relates a case of struggle between the prejudices of old nobility against modern life, while Guet's *Victoire* tells strikingly the story of a workingman who, taking advantage of modern means of self-education, rises to the position of owner of a great industrial undertaking; but at the same time he loses contact with his own people, his wife deserts him, no longer understanding him. The divorce problem was approached in a new way by two excellent writers: suppose free love be adopted, which is meant to better conditions for women, what would happen? E. Rod in *Les Unis* shows a father who does not marry, but simply "unites" his daughters to men; now, the latter no longer feeling bound by law, the one deceives his wife, the second robs her, and the third ill-treats her. L. Lefebvre in *Le couple invincible* studies the case of two good people absolutely devoted to each other, and depending upon each other absolutely; but even then the results are bad; as they are not married, the woman lives in constant fear lest something may happen to break their happiness; she suffers more than an unhappily married woman. René Boylesve in *La jeune fille bien élevée* shows the tragic results of a too lofty education, as it creates expectations which life does not fulfill. Another group is that of patriotic or chauvinistic novels. Maurice Barrès's extremely artistic *Colette Baudouche* is one of the best books of the year. A typical German professor comes to Alsace with pan-Germanistic ideas, but he is won over to the other side by the distinction and refinement of the conquered people, especially by the charming Colette; the latter, however, does not complete her work of conversion, for when the professor proposes to her, she declares that the country in mourning stands between them. Aderer, in *Le drapeau de la foi* treats a similar case in connection with the Franco-Prussian war. The "regionalist" movement has inspired a deeply moving picture by E. Bouloc, in *Les Pages* (peasants); they are the peasants who, thanks to the French Revolution, became landowners, and now at the cost of great sacrifices and energy, try to remain true to their farms and struggle against the tendency to leave the country for the city life. H. Bordeaux's *La Croisée des chemins* is a work of sentimentalism, and unbearable moralizing character. As a counterpart to those national novels, there are some which point out defects of modern French society: In *L'or*, V. Margueritte gives a striking description of the love for Mammon invading the different strata of

society. Vignaud's *La Passion de Claude Bernier* shows the vain attempt of a politician who for a long time struggles to get to the top honestly. The poet, L. le Cardonnell writes a witty satire on *Les Soutiens de l'Ordre*, priests, magistrates, judges, all canvassing, arranging, cheating. At the end an old man, satisfied that all those people who talk so much are simply deceiving the poor, throws, in disgust, in the box a ballot where the name of a candidate is replaced by the word of Cambronne. We pass rapidly exotic novels, like Loti's *La mort de Philæ* (in Egypt) or Nolly's amusing *Hiên le Maboul* (in Annam); novels discussing the oriental question and struggle of races, like Farrère's *La bataille* (showing admirably how the Chinese and Japanese quietly take advantage of our mania for civilizing them, in order to get ready and oust us one day with the arms we procure them); historical novels, like E. Dau-det's *La course à l'abîme* (time of the Terror); G. d'Espargès's *Le vent du boulet* (history of a soldier of Napoleon I.); Herman's *Confidences d'une biche* (supposed memoirs of the Second Empire); scientific novels, like J. Clarétie's *L'obsession* (a case of double personality); novels depicting theatrical life, like Ginisty's *Francine*; but it will not be out of place to mention specially Ohnet's *Mariage Américain*, with a first-class captain of industry of Yankee origin; the book is bristling with all sorts of exciting adventures, and is a fine specimen of a "rattling" story with nothing to it. Tinseau's *Sur les deux rives* is an infinitely superior production, drawing an interesting parallel between France and Canada, not always to the disadvantage of the latter.

The usual embarrassing crop of novels by women: a remarkable wealth of talents with a no less remarkable lack of original philosophy. Mme. Marni's really strong *Souffrir* adds one more to the list of novels in which women, miserably crushed by brutal, untrue, cowardly men, are angels of courageous abnegation and resignation. Mme. Nerval's *Ciel rouge* is a case of the same nature, a woman having made a bad choice; she finds consolation in the company of a delicate young poet, who is then slain by the husband, and the wife, for the sake of the child, consents to live on with the murderer. D. Lesueur's *Le droit à la force* maintains that a woman has a right to have recourse to might against the inevitable brutal man, when law does not protect her. By none of these writers the really interesting problem is treated: why—at least in their works—such capital women invariably marry such capital fools or brutes. But this literature shows that writers of both sexes agree at least on one point, i. e., that woman is certainly the most interesting half of humanity.

Many volumes of short stories of unusual interest: H. Rosny in *Nymphée* has two pre-historic love stories, in Asia and in Africa, based on thorough anthropological researches. Frapié publishes a volume called *M'ame Prèciat*, realistics as usual. Haraucourt's *Trumaille et Pélécire* are two stories, the first of a peasant, envied and persecuted because he is more successful than his neighbors, the second (which reminds one of Flaubert's *Cocur simple* in treatment) tells of a poor harmless husband, henpecked by a terror of a wife, who finally drives him insane. Anatole France also touches the feminine question from the man's point of

view, but he strikes the note of satire instead of drama. In *Les sept femmes de Barbe bleue et autres contes merveilleux*, he claims to have discovered a document giving the true story of Bluebeard, who was shamelessly slandered; the real fact is that he was the sweetest and most unfortunate husband, who could not find a decent wife; the whole trouble was that he loved his wives too much and they took advantage of his shyness: The first was showing bears at a fair before she made him marry her, the second was a drunkard, the third smelled of onions, the fourth was too hospitable, the fifth was a fool, the sixth a liar, and the seventh a cruel being who finally had him slain by her brothers. Needless to say they were shrewd enough to lay all the blame at the door of their victim. The lighter vein in short story was also adopted in Kahn's *Contes hollandais* (Dickens's style), in Bergerat's *Contes de Caliban* (a sort of wager in the Boccaccio manner to tell risky things with such art that they become exquisite); Keim tells fantastic stories in his *Contes hypothétiques*. A posthumous work of Villiers de l'Isle Adam, *Derniers Contes* (romanesque and wild) must also be mentioned. Very entertaining are Tristan Bernard's *Veillées d'un chauffeur*. The prix Goncourt went to the brothers Marius and Ary Leblond, for their volume *En France*.

MEMOIRES. None particularly important this year. The following deserve, however, to be named. Bauchard, *Les événements de 1870-71*, memoirs of the Commune, by a grown boy. Mme. Alphonse Daudet, *Souvenirs d'un groupe littéraire*, Fr. Coppée's *Souvenirs d'un Parisien* (in the "Annales").

LITERATURE. Of special importance are: Brunot's 3d Vol. of *Histoire de la langue française*. Bédier's 2d Vol. of his *Légendes épiques*. G. Boissier's *L'Académie française de l'ancien régime* (posthumous work). The period of Romanticism is much studied both in reviews and books, e. g., Souriau, *Népomucène Lemercier*; Séché, *Cénacle de la Muse française*; Boulenger, *Marceline Desbordes Valmore* (in which we learn that her famous Olivier was the poet Latouche). Of Mérimée's friend are published some *Lettres de V. Inconnue*. The posthumous works of Baudelaire were issued. Doumic has a *George Sand*, Ferney an *Hippolyte Taine* (crowned by the Academy), Jean Dornis an *Essai sur Leconte de Lisle*, J. Bertaut, *La littérature féminine d'aujourd'hui*.

Famous dates were commemorated. Among others the bicentenary of Port Royal. Great festivities were organized to celebrate the 50th anniversary of Mircille's publication, and Mistral's statue was dedicated at Arles in presence of the original. The fourth centenary of Calvin's birth was the occasion of a world manifestation in honor of Protestantism, Ex-President Roosevelt being the honorary president of the Committee of the Monument of the Reformation. Paris celebrated the 50th anniversary of the first volume of Victor Hugo's *Légende des siècles*. No end of monuments were erected, to Du Bellay, to Regnard, to A. de Vigny, to Barbey d'Aurevilly, to Guérin, etc., etc.

The FRENCH ACADEMY has received the following members: Aicard, Brieux, Charmes, Doumic, Poincaré, and Prévost.

FRENCH SAHARA. By a convention between Great Britain and France, the former recognized the right of France to all territory

west of the Nile basin, which practically includes the entire desert of Sahara (exclusive of the Libyan Desert), and the State of Wadai. The French Sahara may be roughly estimated at a million and a half square miles and the population at 800,000. A line of posts for the safeguarding of caravans extends from Cape Blanco on the Atlantic to the oasis of Bilma, north of Lake Chad. Bilma is an important source of salt and sends most of the output to the Sudan.

There is a Bank of West Africa, with a capital of 5,835,000 francs and reserve funds of 254,000.

FRENCH SOMALI COAST. A French protectorate lying between Eritrea and British Somaliland on the Gulf of Aden. Capital, Jibuti (population about 11,000, of whom 500 are Europeans). Area 46,320 square miles; population of the Danakil, or the Somali race, 208,061. A mission school for boys and one for girls were opened at Jibuti in 1902, with 50 pupils. The industries are insignificant, with the exception of the coast fisheries. The imports (principally cotton goods), which are chiefly in transit to Abyssinia, amounted in 1907 to 15,855,647 francs, of which 3,950,218 came from France; exports (chiefly coffee, ivory, and hides), 23,091,018 francs, of which 1,406,607 went to France. There were in 1908 193 miles of railway. Much of the traffic which formerly passed by way of Zailah and Aden now goes by the Jibuti-Harrar Railway, which has been open to traffic since December 26, 1902, between Jibuti and Diré-Dawa, the station for Harrar proper. There are four post-offices. The local budget for 1908 balanced at 1,191,800 francs. The estimated expenditure of France on the protectorate for 1909 was 562,500 francs. In 1907 (exclusive of Arab and Indian craft), 218 vessels of 375,793 tons entered, and 218 of 376,392 tons cleared, at Jibuti. The country is administered by a governor assisted by a privy council. The Governor in 1909 was M. Pascal; the envoy to the Emperor Menelik of Abyssinia, M. Brice.

FRENCH WEST AFRICA. A dependency of France divided into colonies, etc. (decree of 1904), as follows: Senegal, French Guinea, Ivory Coast, Dahomey, Upper-Senegal-Niger, Mauritania (territory), and the Military Territory of the Niger (qq. v.). The total area is estimated at 1,510,514 square miles. Population (1906), 8,811,849. A uniform system of education has been devised, under the supervision of a director of education for the whole of French West Africa. Over 10,000 children are receiving elementary instruction; the expenditure on the schools for 1906 was estimated at 1,252,000 francs. The imports (94,801,549 francs in 1907), are chiefly food-stuffs, textiles, and beverages; the exports (79,763,395 francs), fruits, oils, and oil seeds. There were (December 31, 1908) 970 miles of railway. A general budget has been created, to be estimated by the Governor-General in council, which applies the funds derived from the customs and navigation duties of the constituent colonies to the expenses common to all. The separate colonies have at their disposition, therefore, only their internal revenues; on the other hand, they have been relieved of many expenses which have been transferred to the general budget. Provision is also made therein for subventions to colonies

in need of financial assistance. The general budget for 1909 balanced at 82,175,000 francs, against 51,592,000 in 1908. The expenditure of France on the entire territory amounted, according to the budget for 1909, to 15,340,387 francs, mainly for military purposes. The outstanding debt, January 1, 1907, was 68,949,000 francs. There is a Bank of West Africa, with a capital of 5,895,000 francs and reserve fund of 254,000. The use of French money is compulsory. The military force of 8956 includes 2098 Europeans. Each of their five colonies is under a lieutenant-governor, and Mauritania under a commissioner; these are subject to the control of the Governor-General (A. W. Merland-Ponty in 1909), who resides at Dakar, a fortified naval station in Senegal.

Hostilities were reported in August in the upper region of the Ivory Coast, where the French military expedition of June was opposed by the natives. Fighting was reported in December between the French and tribesmen near Belma, a frontier post west of Tibesti, and also in the region lying between the Algerian outposts and the French Niger territory in West Africa.

FRIENDS, THE; or THE SOCIETY OF FRIENDS, often called **QUAKERS**. A denomination of Christians which resulted from the preaching of George Fox about 1647. There are in the United States four bodies of the denomination, the so-called Orthodox, the Religious Society of Friends, to whom the name Hicksite is sometimes given by those outside of the denomination, the Wilburite, and the Primitive. They differ chiefly in matters of church administration. In point of numbers the largest branch is the Orthodox, which numbered in 1909 99,623 communicants, with 1341 ministers and 568 monthly meetings. This branch of the denomination is strongest in the States of the Middle West. It has fourteen yearly meetings in the United States and one in Canada. Thirteen of these are combined in a federation known as the Five Years' Meeting. The next meeting of this body will be in 1912 at Indianapolis. The Orthodox branch has 12 colleges under its control, the best known of which are Haverford College for men, Earlham College for men, and Bryn Mawr for women. The most important event during the year was the reopening of Pickering College in New Market, Ontario, Canada. The former Pickering College was burned five years ago. A new secretary, employed by the American Friends' Board of Foreign Missions, spent the early months of 1909 visiting mission stations in Jamaica, Cuba and Mexico.

The Religious Society of Friends has in round numbers 20,000 members, with 183 annual meetings. It has seven yearly meetings in the United States and Canada. The Society has under its auspices Swarthmore College at Swarthmore, Pa., with thirteen preparatory and twelve secondary schools in New York, New Jersey, Pennsylvania, Delaware and Maryland. Its schools and colleges are all co-educational. In 1908 a new monthly meeting was established in Pasadena, California, the first of its kind belonging to this branch of Friends on the Pacific coast. In July, 1910, the Biennial General Conference will be held in Ocean Grove, New Jersey. The Religious Society of Friends carries on active philanthropic work, especially in the line of temperance. The Wilburite

branch had in 1909 about 4500 communicants, with 38 members. It has seven yearly meetings, each of which is independent, relations between them being maintained by an annual exchange of epistles. The Primitive body is very small. It numbers about 235 communicants and 11 churches. The Orthodox body maintains missions in 12 countries, and contributions are made for the maintenance of about 115 missionaries and 200 native workers. Among the institutions maintained by this body are the Friends' Asylum for the Insane, Frankford, Pa.; the German Dispensary and Hospital; the Pennsylvania Hospital for the Sick and Indigent; and the West Philadelphia Hospital for Women. Homes for the aged, widows and orphans are also maintained. The official organ of the Orthodox Friends is *The American Friend*, published in Philadelphia. The Religious Society of Friends publishes the *Friends' Intelligencer*, also located in Philadelphia.

FRITH, WILLIAM POWELL. An English artist, especially known as a figure and genre painter, died November 2, 1909. He was born near Ripon in Yorkshire, 1819, and studied in Sass's Art School in Bloomsbury. In 1840 he exhibited his "Malvolio before the Countess Olivia," which attracted considerable attention. His "Village Pastor," painted in 1845, made him an associate member of the Academy. For some time after he continued to paint in a similar vein, producing "The Parting Interview of Leicester and the Countess Amy," "The Coming of Age," "Pope Making Love to Lady Mary Wortley Montagu," etc. In 1853 he was elected a Royal Academician and shortly thereafter he began the "Portraiture of the Humorous Aspects of an English Crowd." Among the best known of his pictures is his "Life at the Seaside, Ramsgate," which was purchased by Queen Victoria. His "Derby Day," painted in 1858, was a vivid representation of this English carnival and was executed with admirable effect. He painted, as a commission from Queen Victoria, in 1865, "The Marriage of the Prince of Wales." Among his later works are: "The Railway Station," "The Road to Ruin" (1878), and "The Private View of the Royal Academy" (1881). He published in 1887 a volume entitled *My Autobiography and Reminiscences*, and in the following year published a second volume, entitled *Further Reminiscences*.

FRUIT GROWING INDUSTRY. See AGRICULTURE AND HORTICULTURE.

FUNGICIDES. See BOTANY.

GALLIFET, GASTON ALEXANDRE, AUGUSTE, Marquis de. A French military officer, died July 8, 1909. He was born in Paris in 1830. In 1853 he was commissioned sub-lieutenant, and he fought with such distinction in the Crimean War that he was attached to the staff of the Emperor. In 1862 he was transferred to the staff of the general in command of the Mexican expedition, and was severely wounded at the battle of Puebla. He saw service, in the same year, in Algiers, and again in 1868. He was made commander of a brigade in the Franco-German War, and was among those who surrendered at Sedan. Following the war he was effective in suppressing the Commune, and in 1872 he took charge of the El Goleah expedition to crush revolting tribes in Africa. General de Gallifet was one of the strongest supporters of the Republic, and he became a personal friend

of Gambetta. He was given command of a division in 1875 and of an army corps in 1879. He greatly improved the methods of cavalry manœuvres, and he was called the greatest cavalry officer of his time. In 1894 he retired from active service, but he became conspicuous in the Dreyfus affair. He entered the Waldeck-Rousseau Cabinet as Minister of War, chiefly, he said, "in order to keep the Dreyfus affair in the proper path, neither for nor against the accused."

GALLOWAY, CHARLES BETTS. An American bishop of the Methodist Episcopal Church, South, died on May 12, 1909. He was born in Kosciusko, Miss., in 1849. He graduated from the University of Mississippi in 1868, and in the same year entered the Mississippi Conference of the Methodist Episcopal Church. He served in various churches in his native State. From 1882 to 1886 he was editor of the New Orleans *Christian Advocate*. In the latter year he was made bishop. He was a delegate to many conferences and visited missions in Japan, China, Korea and Brazil. He was a trustee in many educational institutions.

GALVESTON, TEXAS. See **ELECTORAL REFORM.**

GAMBIA. A British Crown colony and protectorate on the west African coast. Area (colony and protectorate), 3615 square miles; estimated population, 137,516. The colony, consisting practically of St. Mary's Island, has an area of 4 square miles and a population of 8807. Capital, Bathurst, with 8807 inhabitants. There are government and mission schools. There is an armed police force of 80 men, and a company of the West African Frontier Force of 126. Imports (cotton goods, £82,023; rice, £71,889; kola nuts, £39,942; tobacco, £8248; spirits, £4872), amounted in 1907 to £445,359. Exports (ground nuts, £256,685; rubber, £5686), £408,467. In 1908 the imports and exports amounted to £390,740 (Great Britain £133,824) and £374,138 (Great Britain, £51,197) respectively. The revenue and expenditure for three successive years was as follows: 1906, £65,245 and £56,900; 1907, £65,892 and £57,729; 1908, £57,898 and £61,097. There is no public debt. The Governor (Sir George C. Denton) is assisted by an executive and a legislative council.

GAME LAWS OF 1909. The legislation affecting game enacted in 1908 was greater, and in some respects more important, than that of any previous year. All the States except seven held regular legislative sessions, and special sessions were held in Alabama and Ohio. At all the regular sessions game bills were under consideration and also at the extra sessions in Texas and Washington, but in Georgia, Kansas and South Carolina all legislation affecting game failed, leaving thirty-eight States which amended their game laws. In Canada game bills were passed in Alberta, British Columbia, Manitoba, New Brunswick, and Nova Scotia, and changes were made through Orders in Council in two or three other provinces. The total number of new laws passed in the United States and Canada was about 220, nearly half of which were local measures. The legislation of the year encountered unusual difficulties and obstacles. Besides the failure of the game laws in Georgia, Kansas and South Carolina, a general game bill and a section of another bill were

vetoed by the Governor of Washington, but at the extra session a general law was finally enacted on August 23. In Texas the bill passed at the regular session, but was vetoed and the measure passed at the second extra session failed of approval by the Governor, but was filed in the office of the Secretary of State and became a law without the Governor's signature. In California uncertainty was caused by the new deer law, due to the fact that through some mistake the bill signed by the Governor was different from the bill actually passed by the legislature, but it was nevertheless declared to be a law, as the only one which had received executive approval. A confusion somewhat similar regarding the elk statute in Wyoming was caused by the fact that a section of the new law closes the season until 1912, while another section provides an open season from September 25 to November 30, and still another section authorizes the holder of an ordinary or special license to kill one elk under each license. The State warden announced that licenses would be sold as usual during 1910. In Washington the entire game law was declared unconstitutional on account of certain defects of the title in some of the sections. An attempt, which failed, was made in South Dakota to invoke the referendum to defeat the game law passed by the legislature, after its passage.

GAME CODES. New game codes were adopted by Idaho, Missouri, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, Pennsylvania, South Dakota, Utah, West Virginia, Wyoming, and Manitoba, and commissions to codify the game laws were appointed in California, Maryland, and New Jersey. Protection to non-game birds was extended by the adoption of the so-called "model" law in Oklahoma and North Dakota, and by important amendment in California; while in Illinois, New Mexico, Pennsylvania, South Dakota, and West Virginia protection was removed from a number of predaceous birds without proper discrimination between injurious and beneficial species.

GAME REFUGES. Among the notable features of the year's legislation were certain provisions for game refuges in parks; protection accorded to Hungarian partridges in a dozen or more States rendered necessary by large importations of these birds during 1909; and the rapid increase in popularity of the alien licenses which was shown by the doubling in the number of States adopting this provision. Several novel provisions were adopted, among which were the authorization given to governors as a result of the severe forest fires of 1908 to suspend the hunting season in time of drought in Maine, Massachusetts and Vermont, and in New York to prohibit camping, hunting or fishing on lands in forest preserve counties. Provisions were also made in Massachusetts for making State game refuges of all State parks and the same action was taken in regard to State parks and national forests in Minnesota. A measure was passed in the Pennsylvania Legislature requiring persons intending to establish deer parks to drive off wild deer before enclosing their lands. In Colorado and Wyoming laws were passed providing for feeding big game during severe winter weather. The use of silencers on guns was prohibited in Maine, North Dakota, and Washington.

CHANGES IN SEASONS. The most notable changes in seasons were several giving added

protection to big game and some important species of game birds and a few reopening seasons for deer. Complete protection was given antelope in Montana, Nevada, Oregon, and Wyoming, thus prohibiting the killing of antelope everywhere in the United States except in Washington. Protection was given to elk and sheep in Oregon, does in Colorado, Missouri, and Oregon; cow moose in Nova Scotia; grouse and prairie chickens in Missouri and South Dakota; doves in Montana; doves and quail in Nebraska, and sage grouse in several counties in Utah. Spring shooting was prohibited in Massachusetts and North Dakota, and extended two weeks in Indiana, Nevada, and Oregon; three weeks in Nebraska, and the open season was extended from January 1 to March 1 in Idaho. Protection was given to various varieties of birds in Oklahoma, California, Illinois, New Mexico, and Oregon. Measures were adopted in Iowa, South Dakota, and West Virginia prohibiting the sale of all game throughout the year. Other States passed measures prohibiting and limiting the sale of game.

LICENSES. The growing popularity of the license system was shown by the prominent part it occupied in legislation in 1909. All the States except Arkansas and Georgia now license non-resident hunters, three-fourths of the States license residents, and about one-half license aliens. License legislation was enacted for the first time in Nevada, New Mexico, and Oklahoma. Resident licenses were established in New Hampshire, Vermont, Rhode Island, New Jersey, West Virginia, Iowa, Oklahoma, Texas, New Mexico, and Nevada, and alien licenses in a dozen or more States.

WARDENS. Several States made important changes in the warden service. South Dakota established the office of the State Game Commissioner, and North Dakota modified its system by providing a Game and Fish Board of Control to take charge of all matters relating to game.

GAME PRESERVES. An important feature of the new laws passed in 1909 was the provision made by several States for the establishment of game preserves and game refuges. Massachusetts provided for making game refuges of all State parks; New York made appropriation for the purchase of a State game farm; Minnesota enacted two bills making all State parks and national forests within its boundaries game refuges; Wyoming established a game preserve in the Big Horn Mountains; Idaho created a State game refuge on the Payette River; and California modified its law relating to State game refuges and created a new refuge of the Pinnacle National Forest in San Benito county. Twenty-six national bird reservations were created by executive order, making the present number 51. The President also set aside a small island in Alaska as a breeding ground for moose, and the high summits of the Olympic Mountains in Washington, which include the summer range of the Roosevelt elk, were set aside as an Olympic national monument.

GAMGEE, ARTHUR. An English physiologist, died March 29, 1909. He was born in Florence, Italy, in 1841, and was educated at Edinburgh University. From 1863 to 1869 he was assistant professor of medical jurisprudence at Edinburgh University. In 1873 he was appointed the first Brackenbury professor of physiology in Owens College, Manchester. From

1882 to 1885 he was Fullerman professor of physiology at the Royal Institute of Great Britain and assistant physician and lecturer on materia medica in St. George's Hospital, London. He was also examiner at several universities in Scotland and England. In 1902 he delivered the Croonian lecture of the Royal Society. From 1903 to 1905 he conducted for the Carnegie Institution at Washington an inquiry "On the present state of our knowledge of the Physiology of Nutrition." Among his published works are the translation of Hermann's *Human Physiology*; *Text-Book of the Physiological Chemistry of the Animal Body* (1880-93), and original papers on physiology and especially physiological chemistry.

GARBAGE AND REFUSE DISPOSAL.

The chief events in this field in 1908 were the letting of contracts for a mixed-refuse (garbage, rubbish, and ashes) incinerating plant for the city of Milwaukee, Wis., and for a garbage reduction plant for the city of Columbus, O. Neither plant had been completed at the end of the year. The Milwaukee incinerator will be of the high-temperature British type (Heenon & Froude), with provision for converting the heat generated into electric light or power. It will have a contract capacity of 300 tons of mixed refuse, and will be built under strict guarantees as to cost of operation and other results obtained. On the basis of the contractors' bids, the plant will produce a yearly revenue of \$7960, assuming that the steam produced is sold or utilized for power at the rate of 4 cents per 100 pounds of steam or 1½ cents per kilowatt-hour of electricity generated from the steam. The Columbus reduction plant, which will treat garbage only, and which, like all completed reduction works, will convert the garbage into marketable grease and a fertilizer base, will be the second example of a municipally owned and operated garbage reduction works. See "Statistics of Cities" for 1907 (*Special Bulletin, United States Census, 1909*) for some figures on the practice of American cities of 30,000 population and over.

GARRISON, WILLIAM LLOYD. An American merchant and publicist, died September 12, 1909. He was born in Boston in 1838, and was the son and namesake of the famous abolitionist. His education was obtained from private and public schools. At eighteen years of age he began his business career. He held various positions in banks in Lynn and Dorchester until 1864, when he went into the wool business, establishing in 1865 a commission house of which he was the head for twenty years. He retired from active business in 1900. Mr. Garrison took no part in public affairs until after the death of his father in 1879. Following that, he engaged in the various movements of the day for the improvement of social and political conditions. He was an advocate of Henry George's Single Tax theories, and also of the principles of the American Free Trade League.

GAS. According to the *Mineral Resources of the United States Geological Survey*, published in 1909, the total quantity of artificial gas produced in the United States in 1908 amounted to 156,909,310,000 cubic feet, valued at \$133,571,122. This total includes the gas manufactured at gas-house retorts, at water-gas works, and the surplus gas produced at by-product recovery coke plants. In 1907 the total production of all kinds of artificial gas amounted to

149,454,307,000 cubic feet, valued at \$120,635,416, compared with which the production in 1908 showed an increase of 7,455,003,000 cubic feet in quantity and of \$6,935,706 in value. The associated products in 1908 amounted to 6,253,125 tons of coke, valued at \$21,507,045; 110,430,663 gallons of tar, including 9,168,834 gallons of water-gas tar, valued at \$2,766,700; 30,615,835 pounds of anhydrous ammonia (the ammonia liquor reported being reduced to its equivalent in NH_3), valued at \$2,065,169; and 44,093,437 pounds of ammonium sulphate, valued at \$1,322,807.

The total quantity of coal carbonized at coal-gas works and in by-product ovens in 1908 was 9,252,978 short tons, of which 5,699,058 tons, or 62 per cent., were consumed in by-product oven plants, and 3,553,920 tons, or 38 per cent., were used at gas works. In 1907 the total quantity of coal carbonized was 11,490,661 short tons, of which 7,460,587 short tons, or 65 per cent., were consumed at by-product coke works, and 4,030,074 tons, or 35 per cent., at gas works. Notwithstanding the decrease in the quantity of coal carbonized in the gas-house retorts, the quantity of coal gas produced and sold increased from 34,302,954,000 cubic feet in 1907 to 37,355,886,000 cubic feet in 1908, while the output of surplus gas at by-product coke plants decreased from 20,516,731,000 cubic feet in 1907 to 16,205,925,000 cubic feet in 1908. The coke produced at gas works decreased from 2,510,106 short tons in 1907 to 2,051,899 tons in 1908, and by-product coke decreased from 5,583,038 short tons to 4,201,226 tons. The quantity of water gas produced and sold in 1908 amounted to 103,347,497,000 cubic feet, valued at \$96,343,221, against 94,634,620,000 cubic feet, valued at \$90,173,112, in 1907.

The quantity of coal gas sold for illuminating purposes in 1908 was estimated by the Geological Survey at 32,485,571,000 cubic feet, valued at \$23,599,930, an average of 73 cents per thousand cubic feet, while that sold for fuel was 21,076,242,000 cubic feet valued at \$13,627,971, or 65 cents per thousand cubic feet. In 1907 the quantity of gas sold for illuminating purposes was 30,156,774,000 cubic feet, valued at \$23,119,423, or 77 cents per thousand cubic feet, and the gas sold for fuel was 24,662,913 cubic feet, valued at \$13,342,881, or 54 cents per thousand.

Oil and water gas production had developed with marked rapidity, and a number of companies formerly producing coal gas changed over to oil or water gas, in whole or in part. In 1907 there were 516 coal-gas companies which reported to the Geological Survey, and in 1908 there were 506, a decrease of 10, and in 1907 there were 13 less than in 1905. The number of oil and water gas companies reporting increased, however, from 477 in 1905 to 520 in 1907 and to 552 in 1908. In the quantity of oil and water gas produced there was an increase from 82,959,229,000 cubic feet in 1905 to 102,139,875,000 in 1907, and to 110,237,203,000 in 1908. Of the total production of oil and water gas in 1908 approximately 7,000,000,000 cubic feet were lost or unaccounted for, leaving 103,347,497,000 cubic feet as the net production sold. This was nearly double the quantity of coal gas sold in 1908. It was also to be noted that the values of oil and water gas are higher than those of coal gas, the average price for all of the oil and water gas sold in 1908 being 93 cents,

against 70 cents for coal gas. A part of this was due to the larger proportion of oil and water gas sold for illuminating purposes and part to the inclusion in the coal gas of the product from by-product coke ovens, most of which is sold for fuel purposes while the proportion sold for illuminating purposes is usually turned over to other distributing companies at a much lower price than that at which it reaches the consumer. About 75 per cent. of the total quantity of oil and water gas produced in 1908 was sold for illuminating purposes and 25 per cent. for fuel purposes.

On January 4, 1909, the United States Supreme Court handed down a decision on the appeal of the State and city of New York from the decision of the Circuit Court of the United States for the Southern District of New York, and decided that the "80 cent gas bill" passed by the legislature of the State of New York in 1906 was legal and that the rate was not confiscatory so as to render the law unconstitutional, as was decided by the lower court, which restrained the city from enforcing the provisions of the acts and the order relating to rates and penalties. The original laws concerned in this litigation were passed in 1905 and 1906, the latter year bringing forth the law (Chap. 125, Laws of 1906) limiting the prices of gas in the Borough of Manhattan and the Bronx to other consumers than the city of New York to 80 cents per thousand. The Supreme Court, after examining the facts in the case, decided that the 80 cent law was not confiscatory in that returns of 6 per cent. upon the total value of the property would be produced. Subsequent events, said the Court, might show that the rate of 80 cents was unreasonable and in such event relief might be demanded by the company without prejudice. Immediately after the announcement of the decisions steps were taken to repay to consumers the excess payments which had been held under the direction of the Court until a final decision was reached in the matter. This was done, and during the year the many thousands of customers of the gas company received checks in settlement of their claims. This marked the conclusion of one of the most significant attempts to regulate a large public utility, and the outcome of which was awaited with interest in other States than New York.

In London during the year 1909 high-pressure gas found increased application for illumination and high-power lamps were installed both for public street lighting and in adjoining works and factories. Inverted gas lamps of approximately 1500 candle-power for high-pressure mains were used in Fleet Street, and were found decidedly economical, consuming but 25 cubic feet of gas per hour apiece. Similar lamps displaced electric arc lamps in Berlin and other European cities for street lighting, and so successful have they proved that considerable encouragement in the future of this department of the industry was manifested by gas engineers. Reinforced concrete construction was making itself felt in the gas industry, as elsewhere, and a number of large tanks were built of this material. The Turin Gas Works built such a tank 136 feet in diameter and 33½ feet in depth, and other gas-holding tanks standing clear of the ground have been built of this material. A steel tank 216 feet in diameter and nearly 40 feet deep was contracted for to be erected

at Toronto, and when completed will rank as the largest tank of this class. A serious accident occurred on December 7, when a large tank of steel and concrete of about 7,000,000 cubic feet capacity, at the Grassbrook Works of the Hamburg Corporation failed shortly after the gas-holder had been put into use. The roof of the vault within the annular tank collapsed, permitting the escape of the gas from the holder, and this becoming ignited produced a serious fire, which destroyed adjoining property and another gas-holder. The accident caused a loss of 20 lives and injury to many other people. Another serious accident took place at Geneva on August 23, when an explosion occurred, resulting in the destruction of a large quantity of buildings and machinery.

Blau Gas, a compressed gas mixture, where gases rich in carbon, which liquefy under pressure, have not been eliminated, as in the usual forms of compressed gas, figured prominently in the year 1908. In Germany the mixture, which was put on the market in steel cylinders, contained the liquefied heavier gases and was especially useful for incandescent gas lamps. It found considerable application in Germany for lighthouse illumination and figured in some of the more important installations. The cylinders of liquid gas could be distributed with as much facility as supplies of oil, and when used with incandescent mantels furnish a very satisfactory illuminant for lighthouse lanterns.

GAS, NATURAL. See **NATURAL GAS.**

GAS ENGINES. A number of the large gas engines were being installed during 1908 at the Gary Works of the Indiana Steel Co., and the large power plant with an ultimate capacity of over 200,000 horse-power was gradually being brought into use. These engines maintained their position for size among the largest ever constructed and fully met anticipations. In marine gas engines progress was made, but nothing very much in advance of the work of previous years. The non-magnetic yacht *Carnegie* was put into commission with auxiliary gas engines and a producer for gasifying coal, and the machinery which was constructed with a minimum of steel met all expectations. Several yachts with producers and gas engines were built during the year but none of extraordinary size.

During the year 1909 these appeared as Bulletin 416 of the United States Geological Survey, *Recent Development of the Producer-Gas Plant in the United States*, by Robert Heywood Fernald, in which the progress of the gas engine and the gas producer in the United States is traced and the details of tests and of the operation of various plants are given. The conditions for 1909 as a result of a personal inspection are contrasted with those of 1908, when a similar investigation was made by Mr. Fernald. He concludes that many circumstances "point directly toward the development of highly efficient gas power units which can operate on many types of fuel and can be installed at a total cost that compares favorably with that of the corresponding steam plant and at the same time insures the manufacturer a fair profit." It is further shown that there had been a definite increase in the manufacture of and demand for gas-producer plants, a demonstration of their reliability approximating if not equaling that of a steam plant, that they

are more satisfactorily designed, sold and operated, and in the main show satisfactory economy. Manufacturers and owners report that considering the very brief period of development that has passed since the introduction of this type of power the plants as a whole are giving remarkable satisfaction. There still was a lack of competent operators, though not as marked as formerly, but selling conditions were vastly improved and more intelligent and better informed salesmen and sales engineers were working for the manufacturing companies. Finally the plants themselves were being carefully studied by all concerned.

One of the chief economies in the generation of power with the gas engine and the producer is the availability of less expensive grades of fuel. In America experiments have centred chiefly around lean coals, but in Europe other substances were being taken into consideration. Thus there was a demand for a suction producer that would generate gas direct from wood. There is no record of such an achievement, but a producer was designed to operate with coconut shells after they have been charred in a suitable retort, while saw-dust from wood-working mills, which is not only a waste product but difficult to dispose of, can be utilized in a type of producer made by an English works. It was also possible to transform tannery refuse into gas in a special apparatus. These same manufacturers built a plant where peat was the fuel employed, and like other gas engine makers were working with a producer for bituminous coal, a device that previously had not been developed in a satisfactory form. A recent device was a suction producer so modified that gas for both power and heat was obtained. With producers thus taking care of various wastes of manufacturing, the hope was expressed that street and domestic refuse eventually could be utilized more economically than by burning under boilers as is now done occasionally, and that power as for electric lighting could be generated at a municipal station. British manufacturers reported a striking increase in the number of gas engines ordered for textile mills, where despite a prejudice against this form of power, improved gas engines are securing a footing. They were found advantageous as they would start against the load without friction clutch and run steadily as is required in a cotton mill. See also **PUMPING MACHINERY** for description of new Humphrey Gas Pump.

GATUN DAM. See **DAMS**, and **PANAMA CANAL.**

GAYNOR, WILLIAM JAY. An American jurist and public official, on November 2, 1909, elected Mayor of New York City. He was born in Whitestown, N. Y., in 1851, and was educated at Whitestown Seminary and in Boston. In 1873 he removed to Brooklyn and was for several years engaged in newspaper work on New York and Brooklyn newspapers while studying law. He was admitted to the bar in 1875 and immediately began practice. He appeared in many important cases, among them the famous case of John Y. McKane, the political boss of Long Island City, who was convicted of election frauds. He took an active interest in politics and was generally known as a Radical Democrat. In 1903 he was nominated by Republicans and Independent Democrats for judge of the Supreme Court and

was elected. He declined the Democratic nomination for Governor and also for judge of the Court of Appeals in 1894 and 1897 and for mayor of Brooklyn in 1896. In 1904 he declined the Democratic nomination for governor. He became justice of the Appellate Division of the Supreme Court of New York in 1899. Judge Gaynor, although for many years a bitter enemy of the methods of Tammany Hall, accepted the indorsement of that body for mayor in 1909. After a bitter conflict in which he was opposed by Otto T. Bannard, Republican, and William R. Hearst, Independent, he was elected by a majority of 70,000, although the remainder of his ticket was defeated. See NEW YORK.

GENERAL EDUCATION BOARD. See UNIVERSITIES AND COLLEGES.

GENERAL FEDERATION OF WOMEN'S CLUBS. See WOMEN'S CLUBS, GENERAL FEDERATION OF.

GENERATORS. See DYNAMO-ELECTRIC MACHINERY.

GENETICS. See BIOLOGY.

GEOGRAPHICAL SOCIETY, AMERICAN. A learned society organized in 1852 to investigate and disseminate new geographical knowledge by discussion, lectures and publication; to encourage geographical exploration and discovery and to establish in the chief maritime city of the country, for the benefit of commerce and navigation and the great industrial and material interests of the United States, a place where the means shall be afforded of obtaining accurate information for public use concerning every part of the globe. The membership of the society in 1909 was 1250. It has a constantly increasing geographical library of over 40,000 volumes and a large and very valuable collection of maps, charts and atlases relating to every part of the world. It publishes a bulletin and cooperates and interchanges information with over 300 domestic and foreign geographical and other scientific societies. The Society has a house at 15 West Eighty-first Street, New York City. The officers in 1909 were: President, Archer M. Huntington; Vice-Presidents, D. O. Mills, John Greenough, and Anton A. Raven; Foreign Corresponding Secretary, Professor William Libbey; Domestic Corresponding Secretary, Archibald D. Russell; Recording Secretary, Hamilton F. Kean; Editor, Cyrus C. Adams, and Librarian, Frederick S. Dellenbaugh.

GEOGRAPHIC SOCIETY, NATIONAL. A learned body, founded in 1888, for the publication of the results of geographic exploration and research. The data thus gathered is published in an illustrated monthly magazine, and the Society publishes in addition large maps and various books. The library it maintains at its headquarters in Washington, where gold medals are awarded and a series of addresses is given. In June, 1909, the Society sent an expedition to make a study of glaciers in Yukatut Bay and Eastern Prince William Sound, Alaska, under the leadership of Professor Ralph S. Tarr, of Cornell University, and Professor Lawrence Martin, of the University of Wisconsin, who, with a party of five, took the field, returning in September with matter rich in scientific value. The outfitting of this expedition, entirely contributed by the Society, amounted to \$6000. During 1909 there were four awards of gold medals for notable geographic achievement by

the Society. The Hubbard medal awarded to Commander Robert E. Peary was presented to him at the annual dinner of the Society on December 15, on which occasion a gold medal was also presented to Captain Robert Bartlett, his navigating officer, for distinguished achievement in Arctic exploration. A gold medal was awarded Edward H. Shackleton for exploration in the Antarctic, which will be presented when he appears before the Society, March 23, 1910. A gold medal was also presented to Professor Grove Karl Gilbert for distinguished geographic research. The Society sent to Sicily a trained geologist to investigate the Messina earthquake, and the report, as well as that of its Alaskan expedition, was given to the world in the *National Geographic Magazine*. The membership of the organization is 55,000. The officers in 1909 were: President, Willis L. Moore; Vice-President, Henry Gannett; Secretary, O. P. Austin; Treasurer, John Joy Edson; Editor of the magazine, Gilbert H. Grosvenor. The officers elected for 1910 are: President, Henry Gannett; Vice-President, O. H. Tittman; Secretary, O. P. Austin; Editor and Director, Gilbert H. Grosvenor.

GEOLOGICAL SOCIETY OF AMERICA. See GEOLOGY.

GEOLOGY. The progress of geological investigation during 1909 conformed essentially to the course noted for the few preceding years. It was characterized by cumulative gains rather than by extensive advances in particular departments. A review of the year's contributions as a whole showed, perhaps, a more manifest effort than for some time toward the coordination of materials already in hand and their systematic study. The Darwin centenary gave a strong impetus in that direction, for it was the occasion of a general discussion of evolutionary theories in relation to the biological sciences. Within the field of inorganic geology there was a similar striving for a more definite statement of principles on the basis of recent discoveries in physics and chemistry.

GLACIAL GEOLOGY. In a paper on the physical geography of the Pleistocene period, R. D. Salisbury referred to the important changes of altitude which took place at the close of tertiary time and which were probably related to the profound climatic change that brought on the continental glaciation. The land of eastern North America seems to have stood a few hundred feet higher than the present level, though some geologists are inclined to place the elevation at a thousand feet or more above the existing surface. The same relative conditions obtained in the Mississippi valley. The West experienced a greater uplift, ranging from 1500 to 6000 feet. It is thought that the elevation did not lead directly to the revolution of climate, but more rapid erosion ensued, and so a greater consumption of carbon dioxide. With the abstraction of this gas from the atmosphere, the temperature was correspondingly reduced, while the cooler oceanic waters were able to hold a larger proportion of it in solution, thus reducing the temperature still further. The glaciation had a profound effect upon life. The inhabitable land of the globe was reduced by one-seventh and conditions of existence were made very inhospitable over a still larger area. Migration was forced upon many forms, and those which could not migrate were reduced in numbers or exterminated.

Penck and Brückner, who have devoted many

years to the study of the glaciation of the Alps, gave some interesting data as to the duration of the glacial period and the time that has elapsed since the disappearance of the ice-sheet. They distinguish four stages of glacial activity, called the Gunz, Mindel, Riss, and Würm, the names being taken from places in the Alpine foreland. A comparison of the relative weathering and erosion of the different deposits indicates that the Riss stage is about three times, the Mindel at least twelve times and the Gunz about eighteen times the age of the Würm, which is the most recent. The culmination of the last stage is placed at a round 20,000 years ago, on the basis of various evidences. The opening of the Glacial period may thus have been about 350,000 years ago. Evidences of human culture can be traced back to the interval between the Riss and Würm stages, a period of human development known to anthropologists as the Moustérien. The Swiss lake dwellings date back 4000 years, if not more.

The report of an international committee of geologists showed that the greater number of present glaciers are retreating. In Scandinavia alone are to be found marks of a general advance, the number of growing glaciers being fifteen, as compared with three that are in retreat. Of fifty glaciers in the Swiss Alps that have been under observation, only one (Glacier de Vorab, in the Rhine basin,) has shown a growth.

PRE-CAMBRIAN FORMATIONS. F. D. Adams divides the Pre-Cambrian into three periods—Eo-Proterozoic, with the Laurentian and Keewatin subdivisions; Meso-Proterozoic, including the Lower and Middle Huronian; and Neo-Proterozoic, which embraces the Upper Huronian and the Keweenaw subdivisions. This classification is based on the results of study in the great area of Pre-Cambrian rocks in Canada called Laurentia. It is a striking agreement, however, with the recent work of Willis in China. The three main periods are separated by two great epochs of diastrophism that are marked by profound unconformities. The subdivisions are practically equivalent to those adopted in the dual classification of Van Hise, but Adams emphasizes the importance of the unconformity between the Middle and Upper Huronian, which he believes to be of the same rank as the break between the Laurentian-Keewatin period and the Lower Huronian. In the Upper Huronian he places the Nastopoka series of sandstones, limestones, jaspilites and iron ores that is so strongly developed in Labrador and the Hudson Bay region. The series of coarse sandstones which occupies an area of 24,000 square miles in the vicinity of Lake Athabasca is correlated with the Keweenaw series of Lake Superior.

The principles to be used for the classification of Pre-Cambrian rocks and their correlation were summarized by Van Hise under the following heads: Lithological character, continuity of formations, likeness of formations, like sequence of formations, subaërial or subaqueous deposits, unconformities, relations to series of known age, relations with intrusive rocks, amount of deformation, degree of deformation, degree of metamorphism. In his view the division of the Pre-Cambrian into Archean and Algonkian is the only one of general or world-wide application. The Archean is a

group dominantly of igneous rocks, largely volcanic and for extensive areas submarine. The Algonkian is mainly a group of sediments with subordinate volcanic rocks. While the deposition of Algonkian sediments probably was effected by agencies very similar to those of the present day, in Archean time the physical conditions had not yet become favorable to an orderly succession of sediments. The great contrast between the two groups is shown wherever the Pre-Cambrian has been studied.

DYNAMICAL GEOLOGY. The character and cause of the widespread deformation of the earth that is revealed in its past history were discussed by T. C. Chamberlain, who inclines to the view that movements of upheaval and subsidence have been periodic rather than continuous and that they are due to deep-seated causes. Some influence may be conceded to the effects of erosion in one area and deposition in another on the principle of isostatic adjustment, but these processes are incompetent to explain the cycles of deformation through which the world has passed. The study of deformation is of fundamental importance, as it affords invaluable assistance in the correlation of rock formations.

The modifications of climate during previous ages were ascribed by W. R. Eckhardt to the following causes: Displacement of the earth's axis; changes in the distribution of land and water, and vertical movements of the earth's surface. The character of the climate can often be inferred from the colors of the soils; for example, bright red and yellow soils are characteristic of the tropics, and gray, brown, and yellow of the temperate zones. Tracing back the conditions into past eras we find that land plants were absent in Algonkian time and that the character of the sediments points to a desert climate. During the Cambrian period the climate was strongly differentiated; reddish colored rocks of this age prevail in the lower latitudes, and yellow gray and green strata in the higher latitudes. Indications of glacial phenomena are found at the North Cape, in Australia, and China. During the Silurian, Devonian and Carboniferous periods an oceanic climate prevailed over the greater part of the land surface which was distributed in the northern hemisphere. From the occurrence of coal seams it may be assumed that the climate in the Carboniferous was somewhat varied for the measures are found mostly between the parallels of 35° and 60° north latitude and 25° and 45° south latitude, or in those belts where the formation of peat bogs is taking place at the present time. Coal is not, however, a product of peat, but has been derived from plant tissue through a process of fermentation. In the Permian period glaciation was widespread, due possibly to the shifting of the poles combined with crustal movements. The Mesozoic continental lands had a desert climate, while the early Cenozoic climate was perhaps warmer than at present, at least in Europe.

In a study of the more recent changes of climate, subsequent to the Glacial period, Ellsworth Huntington stated that the climate of most of Asia and apparently of all continental regions between the parallels of 20° and 50° has gradually become warmer and drier. The change from the cold moist conditions of Glacial time can be said to be still in progress.

PETROLOGY. Wright and Larsen have made some interesting observations on the behavior of quartz at high temperatures, based on the fact that an inversion of optical characters takes place at 575° and at 800° C., the mineral is unstable, passing into tridymite at a temperature above the latter limit. It was found that these critical points can be used to indicate the approximate limits of temperature within which quartz has been formed in nature. The quartz of veins, geodes and certain vein pegmatites has the characters that belong to temperatures below the inversion point. On the other hand, the quartz of granite, granitic pegmatites, and porphyries seems to have crystallized at above 575° , but probably below the critical point of 800° .

E. H. L. Schwartz brought up the question of meteoric falls in past ages and pointed out the possibility that some rock masses which have hitherto been considered volcanic outpourings may be really of meteoric origin. The great lava sheets of the Snake River in Idaho, the Deccan traps of India and the Kapte Plains of British East Africa are suggested for study in that connection. The district of Prieska, south of the Orange River, in Cape Colony, contain amygdaloidal melaphyres that in their geological relations seem to be intrusive, but they have the structures of volcanic rocks. There are, however, no known vents through which they could have been erupted; they have not the appearance of surface flows and involve a large amount of crushed materials. Their derivation from a meteoric swarm under the circumstances seems the most probable explanation. The crater of Coon Butte, Arizona, is mentioned, and probably correctly so, as the result of a meteoric collision, though in this case the meteor seems to have been metallic and to have been vaporized by the heat of the impact.

The relation of stony meteorites to terrestrial rocks was considered at some length by G. P. Merrill. Meteorites which fall upon the earth may be divided into three classes: First, those which consist of an alloy of iron and nickel, nearly or quite devoid of silicate minerals; second, those made up of spongy iron with globular aggregates of silicates; and third, those consisting nearly or entirely of silicate materials. Comparing them with the components of the earth, we might consider the purely metallic varieties as representative of the interior part, the silicates as representing the outer crust, and the spongy masses as perhaps a transition phase between the crust and the interior. By combining chemical analyses of the stony meteorites Merrill arrives at an average composition, which he compares with the averages for terrestrial rocks as calculated by Clarke and Washington. The comparison brings out a striking difference, due not alone to the relative proportion of the constituent elements, but to their manner of combination. This variation is shown in the low silica content of the meteorites and their high percentages of metallic iron, ferrous oxide, and magnesia; whereas the percentages of alumina, lime, and alkalis are correspondingly higher in the terrestrial rocks. The closest approximation to the meteorites is found in the class of rocks known as peridotites, which are the most basic of all; while the stony meteorites represent the most acid types

that have come to us from space. It is therefore apparent that the meteorites cannot represent the actual materials of which the earth is composed, for by no process of differentiation would they yield a series so widely variant in composition as are the igneous rocks of the earth.

In his *Natural History of Igneous Rocks*, which was published during the year, Harker gives a very clear presentation of the subjects of igneous activity, magmatic differentiation, and rock classification with suggestive criticism of current views. The work will be appreciated also for its review of recent developments from the side of physical chemistry. An important contribution to the theory of petrology is Iddings's *Igneous Rocks*, of which the first volume, now issued, deals with composition, texture, and classification.

ECONOMIC GEOLOGY. The views regarding the origin of petroleum that have been, or are still held by students were summarized by L. V. Dalton, who presented strong arguments in favor of the derivation from organic matter. Aside from geological considerations, which have been its main support in the past, the organic theory is validated by recent chemical work which has thrown new light on the composition of natural mineral oils. It has been found that cholestol, a compound inherent in all mineral oils and fats, and phytosterol, a similar compound peculiar to plants, are common to petroleum, in fact are the principles which determine its optical activity. On the other hand, oils made by chemical synthesis are optically inactive, however much they may resemble the natural products. It is believed that marine life has afforded most of the material for the formation of petroleum, though the relative importance to be attributed to animal and vegetable organisms is not yet determined. That terrestrial plants have not had any prominent part in the process is probable, owing to the high temperature required for the destruction of their tissues.

In a discussion of the methods by which oil and gas are accumulated in rocks, M. J. Munn called attention to the defects that arise in previous explanations when these are put to practical test. The anticlinal theory of Orton found wide acceptance at first, as it seemed to meet the conditions in many of the Appalachian fields, but later work uncovered inconsistencies that have limited its usefulness. It fails most signally in that it does not account for the great pressure under which oil and gas frequently exist in the rocks. Pressures up to 1500 pounds to the square inch are encountered in gas wells, whereas the extreme pressure explainable by the difference of gravity between water and gas or through hydrostatic pressure under ordinary conditions is from 10 to 55 pounds. The active agent in the accumulation of oil and gas, according to Munn, is water moving under hydrostatic and capillary pressure, which assembles the small quantities distributed through the strata and pushes them ahead of its course until they are trapped by conflicting currents. The pools of commercial value would accumulate in the more porous strata. Once assembled the pressure is maintained by the expansive force of the gas, which may have been collected with the oil or have been generated subsequently from it. The diffusion of the gas is prevented

by the saturated condition of the surrounding rocks. In applying this explanation to practical uses it is necessary to take cognizance, not only of the structural features as influencing the flow of underground waters, but also of the general characters of the beds and all facts bearing upon their relative porosity.

The deposits that constitute the Rand gold-field of the Transvaal have naturally received a great deal of attention, inasmuch as they represent by far the largest field of gold mining operations in the world. The opinions of geologists have been divided in regard to the origin of the gold, which is distributed through a conglomerate called pebble reef or blanket. The sedimentary derivation of the conglomerate is unquestioned, but the point of main interest is whether the deposits should be considered ancient placers or whether the gold has been introduced subsequent to the deposition of the beds. According to J. W. Gregory, the conglomerate is probably of Pre-Cambrian age. Its gold content is to be traced to auriferous quartz veins that occur in an older series of schists, at least the weight of evidence points to such a source. There are no apparent channels through which mineralizing solutions may have circulated and no marks of chemical changes in the rich blanket, as one would expect in deposits due to underground waters. Furthermore, the limitation of the gold to certain beds, and its absence from other beds equally favorable for the circulation of such waters are features inconsistent with the view of its secondary introduction. The placer theory is therefore to be accepted. The question is not without economic importance, since it has a more or less direct bearing upon the continuation of the deposits in depth.

GEORGE JR. REPUBLIC. An experiment in practical philanthropy, begun in 1895 by William R. George at Freeville, N. Y. Its objects are "to prevent crime, develop character, and to promote good citizenship." The government of the republic is modeled upon the government of the United States, and is presided over by the President, who is assisted by the President's Cabinet. Practical affairs of the republic are administered by the citizens under the supervision of officers. Each student works five hours and attends school five hours each day. The curriculum includes a college preparatory course. The support of the republic is practically from voluntary contributions, and its affairs are carried on by the George Jr. Republic Association, which has about 1400 members. There were in 1909 about 160 boys and girls in the republic, with a waiting list nearly equal to that number. In the property occupied by the republic there are 350 acres, with thirty buildings, including cottages, shops, and barns. The year 1909 was the most successful one in the history of the republic. The efficiency of the industries was greatly increased and the standard of the school raised. The experiment has been widely observed and similar associations have been formed in other parts of this country. The president of the Association is Thomas M. Osborne; secretary, Joseph Burden; and the treasurer, A. G. Agnew.

GEORGETOWN UNIVERSITY. An institution of higher learning, under the auspices of the Roman Catholic Church, at Wash-

ington, D. C., founded in 1789. There were in attendance in 1908, 859 students, with 144 members of the faculty. There was received during the year in benefactions \$35,000. Rev. J. B. Creeden was appointed Dean of the Faculty of Arts and Sciences, and the Hon. Wade Ellis was appointed lecturer on international law. A new seismographical observatory was established during the year. There are 102,500 volumes in the library. The president is Rev. Joseph J. Hemmel, S. J.

GEORGIA. One of the South Atlantic Division of the United States and one of the thirteen original States. Its total area is 59,265 square miles, of which 540 are water. The population in 1900 was 2,216,331, of whom 46.7 per cent, were colored. According to a Federal estimate made in 1909 the population in that year was 2,557,412. The capital is Atlanta.

MINERAL PRODUCTION. This State is an important producer of minerals, including coal and iron. There were produced in 1908 321,060 long tons of iron ore, as compared with the product of 1907 of 444,114 long tons. The total production of coal in 1908 was 264,822 short tons, having a spot value of \$364,279. This is a marked decrease over the production of 1907, which was 362,401 short tons, valued at \$499,686. The output in 1908 was less than in any year since 1899, which can be attributed almost entirely to the depression in the iron trade, which particularly affected the production of high grade coal and the manufacture of coke. There were employed in the coal mines of the State in 1908 670 men, as compared with 808 in 1907. Coke was manufactured in 1908 to the value of \$137,524, from 394,222 tons produced. There were two coking establishments, with 350 ovens. The State is one of the largest producers of asbestos and bauxite. There were produced in 1908 2719.01 fine ounces of gold, valued at \$56,207, as well as a small amount of silver. Other products are Portland cement, pyrite, precious stones, copper, lead, and mineral water. The value of the mineral products of the State for 1908 was \$5,200,881, as compared with a value of the product of 1907 of \$6,641,003.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops of the State in 1909 were as follows, according to the figures of the United States Department of Agriculture: Corn, 61,160,000 bushels, valued at \$52,598,000, from 4,400,000 acres; winter wheat, 2,450,000 bushels, valued at \$3,552,000, from 245,000 acres; oats, 6,650,000 bushels, valued at \$4,722,000, from 350,000 acres; rice, 100,000 bushels, valued at \$87,000, from 4200 acres; potatoes, 810,000 bushels, valued at \$810,000, from 10,000 acres; hay, 117,000 tons, valued at \$1,849,000, from 87,000 acres; tobacco, 1,470,000 pounds, valued at \$499,800, from 2100 acres. The corn crop of 1909 showed a considerable increase over that of 1908, when the production was 53,750,000 bushels. The acreage also increased by 100,000; winter wheat showed an increase over the crop of 1908, which was 2,208,000 bushels, while the acreage increased 5000. The oat crop was over 1,000,000 bushels greater in 1909 than in 1908, while the acreage increased about 50,000. The rice crop increased from 87,500 bushels to 100,000 in 1909 and the acreage increased from 3500 to 4200.

The tobacco produced showed a considerable falling off from the crop of 1908, which was 2,705,625 pounds, while the acreage fell from 2575 to 2100. Cotton is the most profitable agricultural product in the State. In 1909-10 the production was 1,800,000 bales. Other valuable crops of the State are peanuts, sweet potatoes, and fruit. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 141,000; dairy cows, 314,000; other cattle, 673,000; mules, 248,000; sheep, 245,000; swine, 1,647,000. All varieties of farm animals have increased considerably since 1900. The wool clipped in 1909 was 571,040 pounds.

FISHERIES. The products of the fisheries of the State for the year ending December 31, 1908, amounted to \$699,660. Of these the most important in amount in value was oysters, of which 1,423,000 bushels, valued at \$332,900, were taken for market purposes and for seedling purposes 23,000 bushels, valued at \$4600. Next in importance was shad, of which 1,333,300 pounds, valued at \$190,000, were taken. Red snapper were caught to the amount of 880,000 pounds, valued at \$30,000. Terrapin and turtles amounted to 42,500 pounds, valued at \$21,030. Among other important fishes were catfish, 279,500 pounds, valued at \$14,730; sea bass, 233,000 pounds, valued at \$13,730; squeteague or trout, 139,500 pounds, valued at \$11,610; sturgeons, 100,000 pounds, valued at \$7000; prawn, 394,000 pounds, valued at \$12,700. The number of independent fishermen in the State during the year was 634, and 1891 wage-earning fishermen were employed. There were 88 vessels engaged in the fisheries of the State, valued at \$83,672.

EDUCATION. The school attendance in 1908, the latest date for which statistics are available, was 322,050. There were 2860 male teachers and 8036 female. The average salary of teachers was, for white, \$44.29, and for colored teachers, \$20.23. The expenditures for education during the year were \$3,742,946. The compulsory education law, which went into effect in 1908, has been followed by excellent results. The State appropriation for 1909 was \$2,250,000.

FINANCE. According to the report of the State treasurer, the balance at the end of the fiscal year 1908 was \$638,717. The income for the fiscal year 1909 was estimated at \$5,113,381, while the expenditures were \$5,104,806, leaving an estimated balance at the end of the fiscal year 1909 of \$647,292. The chief sources of revenue are *ad valorem* on property, polls, railroads, and other specific taxes, railroad rentals, "near-beer" license fees, interest from State depositories, etc. The chief disbursements are for public schools, pensions, charitable institutions, civil establishment, legislature, etc. The bonded debt at the end of the year 1909 was \$7,036,202.

CHARITIES AND CORRECTIONS. The most important event in the history of the correctional institutions of the State in 1909 was the operation of the law which puts an end to the leasing of convicts to private individuals and corporations (see *Politics and Government* below). The legislature of 1907 established a municipal farm for persons convicted of minor misdemeanors. The State has no Department of State Charities, but charity organization societies exist in nearly all the large cities and towns.

POLITICS AND GOVERNMENT. On April 1 the convict lease system, for so many years in operation in the State, came to and end as the result of action of the legislature in 1908, which responded to the demand of the platform on which Joseph M. Brown was nominated for governor, and 2500 prisoners were transferred from various private stockades to the respective counties in which their crimes were committed. The State had been leasing convicts for forty years. The system was abolished because the lease term had expired and popular sentiment demanded it. Instead of being leased to mines, brick kilns and factories, convicts, in accordance with this law, will work on the public roads of the State, under the supervision of the counties, and a great system of highways will be developed. On April 17, Judge Sheppard of the United State Court handed down a decision on the demurrer in the case of the United States against the American Naval Stores Co., of the so-called "Naval Stores Trust." The court overruled the demurrer on the first and second counts of the indictment, but sustained it as to the third count. This charged monopolizing and attempting to monopolize, and the court overruled both for the reason that two separate offenses should not have been charged in the second count and because of its uncertainty. The effect of the court's decision is to uphold the penal provisions of the Sherman Anti-Trust Law and to order the defendants to trial on the charge of conspiracy in restraint of trade. On June 26 Joseph M. Brown was inaugurated Governor of the State to succeed Hoke Smith. After taking the oath of office, Governor Brown made a brief address, expressing the hope that peace might prevail during his administration. On July 6 the State Legislature by a unanimous vote reflected Alexander Stevens Clay to the United States Senate.

The report of the Chief of Police of Savannah, made public on June 6, showed in the first year of the operation of the Prohibition law a decrease of 147 in the number of arrests for drunkenness, compared with 1907, when the saloons were opened. A remarkable feature of the report was the statement that there were no gambling houses in the city, all having been closed during 1908. There was considerable opposition to the enforcement of the law in Savannah, and it was charged by the Prohibitionists that the city treated the law with contempt. The legislature of 1908 imposed a State tax of \$200 on the so-called "near-beer" saloons, but when the State attempted to collect this tax in Savannah, the effort met with much opposition. The State Senate on August 5, in the closing weeks of the session, by a vote of 37 to 2, refused to consider the income tax amendment to the Federal Constitution, postponing action to the summer session in 1910, on the ground that there was plenty of time, and that even by then but few States would have acted.

OTHER EVENTS. On August 21 a race riot at Marietta was averted only by the prompt action of Governor Brown in ordering out State troops. The trouble was caused by a negro stabbing a young white man. The negro was lodged in jail, but the building was attacked by the mob, who threatened to lynch the negro and uttered threats also against all the negroes in town. Governor Brown was in-

formed of the situation and hurried to Marietta. On the arrival of the militia the mob dispersed. In May a serious strike occurred on the Georgia Central Railroad and for a considerable time the entire road was tied up. The strike was caused by alleged discrimination on the part of the railroad in favor of negro firemen. For an account of this strike, see the article **STRIKES**.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below. The most important measure enacted was the new election law prescribing the qualifications for electors, the registration of voters, and containing other provisions. The qualifications of the electors as defined in this measure are as follows: (1) All persons who have honorably served in the land or naval forces of the United States in the Revolutionary War or in the War of 1812, or any other war carried on between the States or with foreign countries. (2) All persons lawfully descended from those mentioned above. (3) All persons who are of good character and understand the duties and obligations of citizenship under a republican form of government. (4) All persons who can correctly read in the English language any paragraph of the Constitution of the United States or of the State of Georgia and correctly write the same in the English language when read to them by any one of the registrars, and all persons who solely on account of physical disabilities are unable to comply with the above requirements, but who can understand and give a reasonable interpretation of any paragraph of the Constitution of the United States or Georgia that may be read to them by any of the registrars. (5) Any person who is the owner of at least forty acres of land situated in this State, upon which he resides, or is the owner of property assessed for valuation at the rate of \$500. This act provides that the right to register under these paragraphs shall continue only until January 1, 1915. Measures were passed providing for pensions to ex-Confederate soldiers and widows of such soldiers. Railway companies are prohibited from employing inexperienced engineers. The laws relating to elections were amended, providing additional regulation for primary elections and for registration of voters. Contributions by corporations for election purposes were prohibited. Farms were established to which may be sent persons committed in police courts and juvenile offenders. An act was passed providing for the inspection of foods and drugs. A sanitarium for tuberculosis was authorized.

OFFICERS: Governor, Joseph M. Brown; Secretary of State and ex-officio Commissioner of Public Lands, Philip Cook; Treasurer, J. P. Brown; Comptroller and ex-officio Commissioner of Insurance, W. A. Wright; Adjutant-General, A. J. Scott; Attorney-General, John C. Hart; State School Commissioner, Jessie M. Pound; Commissioner of Agriculture, Thomas G. Hudson—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, William H. Fish; Associate Justices, Horace M. Holden, J. H. Lumpkin, M. W. Beck, Beverly D. Evans and Samuel C. Atkinson; Clerk, Z. D. Harrison—all Democrats.

The State Legislature of 1909 was composed of 44 Democrats in the Senate and 181 Democrats in the House. The State Representatives

in Congress will be found in the section *Congress* of the article **UNITED STATES**.

GEORGIA, UNIVERSITY OF. An institution of higher learning at Athens, Ga., founded in 1785. There were in attendance in 1909 503 students, with a faculty of 138 members. The library contains 35,000 volumes. The requirements for admission were advanced during the year to meet the requirements of the Carnegie Foundation. The productive funds amount to about \$540,000. The president is D. C. Barrow.

GERITES. See **CHEMISTRY, INDUSTRIAL**, paragraph *Explosives*.

GERMAN BAPTIST BRETHREN. See **BRETHREN, CHURCH OF**.

GERMAN EAST AFRICA. A protectorate of Germany on the Indian Ocean, between British East Africa and Portuguese East Africa. The estimated area is 365,000 square miles, and the estimated population 7,000,000, mostly of mixed Bantu race. The European inhabitants in 1908 numbered 2845 (2014 Germans). Along the coast are Arabs, Syrians, and East Indians numbering over 10,000. Estimated populations of the principal towns in 1906 were: Dar-es-Salaam, the capital, 24,000; Tabora, 37,000; Ujiji, 14,000; Tanga, 5690; Bagamoyo, 4980. In 1908 there were thirty-one government schools, with 3367 pupils; Protestant and Catholic mission schools have over 16,500 pupils.

Many minerals, including gold, iron, copper, lead, coal, and various precious stones, are found in the protectorate, and the forests contain many valuable varieties of wood. To some extent the natives cultivate corn, pulse, and bananas, and rear cattle, sheep, and goats. Near the coast the Germans have plantations for various products, including coco-palms, vanilla, coffee, rubber, tobacco, cacao, sugar, tea, and cotton. By means of several experiment stations, the government is attempting to promote agriculture and cattle-raising. Imports and exports in 1907 were valued at 23,806,000 marks (8,973,000 from Germany) and 12,500,000 (6,008,000 to Germany) respectively. At the end of 1907 there were 210 miles of railway and 1500 miles of telegraph. For the year 1909-10 estimated revenue and expenditure balanced at 14,308,037 marks (including Imperial subvention of 3,578,804 marks). In addition the statement of receipts and disbursements include the proceeds of a loan amounting to 17,450,000 marks. The military force in 1909 consisted of 2799 men (2528 natives). The Governor in 1909 was Baron von Rechenberg.

GERMAN EVANGELICAL SYNOD OF NORTH AMERICA. A religious denomination, which grew from the founding in 1840 at Gravois Settlement, near St. Louis, of the Evangelical Church Association of the West. It was organized by six German pastors for the purpose of making provision for the religious needs of the pioneers, who were largely German immigrants. It united successively with the German Evangelical Church Association of Ohio (1858), the United Evangelical Synod of the East (1860), and the Evangelical Synod of the Northwest (1872), and was ultimately organized as the German Evangelical Synod of North America. Doctrinally, this Synod represents the Prussian union of 1817.

Its articles of faith are for the most part those of the evangelical churches, and in case of disagreement it adheres closely to the passages of Scripture bearing upon the matter in dispute and avails itself of the liberty of conscience prevailing in the Evangelical Church. The strength of the organization, which comprises eighteen districts, covering almost all of the States of the Union and parts of Canada, is greatest in the Central and North Central States. The most recent statistics show 1013 pastors, 1303 churches, 256,895 communicants, 115,006 Sunday school scholars. The total value of church property is \$11,883,194; the amount contributed for the maintenance of churches, \$1,628,439; for church work and benevolences, \$163,276. Foreign missions are actively carried on in the Central provinces of India by 9 missionaries, 7 women missionaries, 57 native helpers and 78 native teachers. Elmhurst College, at Elmhurst, Ill., and Eden Theological Seminary, at St. Louis, are the educational institutions of the denomination. The work of the Synod, which was formerly carried on exclusively in the German language, is now, to a considerable extent, being done in the English language, especially in the larger cities. The official organs of the Church are *Der Friedensbote* and *The Messenger of Peace*. A number of other periodicals, covering all departments of church work, are issued in both languages. The Deaconess work is receiving considerable attention; the mother house is situated in St. Louis. Charitable institutions are maintained for orphans, superannuated ministers and the widows and orphans of deceased ministers in different parts of the Synod.

GERMAN LITERATURE AND DRAMA.

The literary world of Germany has for the past year been in a peculiarly unsettled state. It seems as if the craze of great sellers had been transplanted from America to Germany, for the book-market of that country suddenly manifested alarming symptoms of an adjustment of critical standards to the commercial scale. The illegitimate methods employed in advertising Edward Stillebauer's *Götz Kraft*, published in 1904, and now in its 66th edition, are an example not yet forgotten. Then came the vogue of the novel filled with advanced thoughts on faith, ethics, love and marriage, which culminated in the sensational success of Frenssen's *Hilligenlei*, published in 1906, and now in its 128th edition. About the same time psychological analysis and sociological interest combined in producing that curious document of auto-vivisection and self-revelation, Margarete Boehme's *Das Tagebuch einer Verlorenen*, published in 1905, and now in its 125th edition. But after the fierce denunciation of the means whereby *Götz Kraft* was launched and interminable discussions of the merits and demerits of *Hilligenlei*, and the morality and immorality of the *Tagebuch einer Verlorenen*, which in the meantime had been followed by a numerous progeny, the public seems to have become less susceptible to the suggestions of the advertising and the reviewers' column and the book-market has resumed its wonted more normal course. Although no connection is evident between the great sellers in fiction and the unusual dramatic successes of the same period, it is interesting to note that these, too, have not been equaled. From the standpoint of the box-office the student-play

Alt-Heidelberg and the anti-militaristic drama *Zapfenstreich*, seem to have had no successors of equal drawing power.

The year 1909 is not likely to be remembered in the literary annals of Germany for the high quality of its productions. Dramatists, novelists, and poets were, perhaps, more than ever engaged in eagerly seeking extraordinary themes and in earnestly striving for novel effects, but their achievements were not commensurate to their endeavors. The taste of the reading public, too, as far as it can be gauged by the record of books most in demand and books most frequently reprinted, showed a marked uncertainty and some puzzling contradictions. While the sensational success of the translation of Artzibaschew's ultra-modern story, *Ssanin*, did not augur well for the spirit of the reading world of the country, it was rather encouraging to learn that its rival in favor was Helen Keller's *Optimism*. It must be admitted, too, that although Sudermann's novel, *Das hohe Lied*, held the first rank among works of native authors during the first month of the year, it gradually fell behind as the more meritorious works of the year, the stories by George Herrmann, Hans Rudolf Bartsch, and Gabriele Reuter slowly worked their way to the front and continued on the list. That the new novel by Gustav Frenssen, *Klaus Hinrich Baas*, would turn out to be the greatest seller of the season of 1909-10 seemed a foregone conclusion, since it had passed the twenty thousand mark within two months after its publication.

DRAMA. The dramatic situation seems hopeless. The powerful revival of German drama in the '90's has been followed by a steady decline, even of those men in whom the hopes of a future centred. It is almost pathetic to witness the repeated efforts of Gerhart Hauptmann to give plastic form and dramatic life either to the elusive fabrics of his own fancy or to the mediæval legends which he exhumes from the dust of ancient chronicles. For though he undoubtedly feels the charm of their simplicity, when he attempts to reproduce them he fills them with the complex elements of his own personality, and the result is painfully inharmonious. The simple lines of the legend which he attempted to recreate in his *Griseldis* were marred and distorted by the addition of traits foreign to the source upon which he based his work, and the critics, who seem to delight in condemning everything that comes from his pen of late, were only too justified in their censure of the work. Hauptmann's great rival, Hermann Sudermann, was no luckier in his recent productions. His *Strandkinder*, though launched in the Berlin Schauspielhaus, which rarely gives up its stage for the first production of modern plays, and based upon a page of mediæval Prussian history appealing to the nationalistic tendencies, was not over warmly received either by the critics or the audience. Wildenbruch's *Der deutsche König*, though it presents the story of Henry I., which never fails to stir a German heart, with additions that betoken the author's lack of imagination and freedom, had a far better reception, and impressed by the honesty and seriousness of its endeavor even such critics that were never in sympathy with the work of the living poet.

Among the dramatists who by their previous

achievements rank next to those leaders of German drama, a tendency to court the favor of the audience by farcical inclinations spoiled what otherwise might have been excellent comedies, like Ludwig Fulda's *Das Exempel* and Ernst von Wolzogen's *Ein unverständener Mann*. Two men who had once held out the promise of great things have taken another step backwards. Otto Ernst's *Tariff der Patriot* and Max Dreyer's *Pfarrerstochter von Streladorf* gave proof of the hopeless decline of their author's dramatic power. Karl Schönherr, who in the previous year won the Schiller prize, failed to do honor to the prominent position which this distinction gave him, in his four-act comedy, *Über die Brücke*. Frank Wedekind, who, with his gifted wife, plays his own works to audiences that seem to accept everything that comes from his erratic pen, produced a one-act play, *Die Zensur*, without making clear the meaning of the sub-title, "eine Theodizee," or even the purpose of the play itself. Otto Julius Bierbaum, on the other hand, produced at the festivities of the University of Leipsic a charming student comedy, *Der Musenkrieg*. A few rural dramas showed merit, among them Clara Viebig's *Das letzte Glück* and Carl Friedrich Weigand's *Winternacht*. There were several successful attempts at historical drama: Hans von Gumpenbergs *König Konrad I.*, Wilhelm Weigand's *Lorenzino* and Rudolf Herzog's *Der letzte Kaiser*. Hugo Salus made his debut as a dramatist in a fanciful poetic drama, *Römische Komödie*, which owed its success to his lyrical powers. Johann Wiegand's new play, *Der Fall Henner*, a contribution to the school tragedies, which occupy no little space in drama and fiction of contemporary Germany, proved too much of a *Tendenzstück* to achieve a lasting success. Two plays were dramatizations of successful novels: Josef Lauff's *Der Deichgraf*, a historical drama based on his story, *Frau Aleit*; and Hermann Stegemann's *Daniel Junt*, adapted from the author's story of the same name. Hans Müller, whose advent in the dramatic world a year ago held out promise of great achievement, has been led astray by the craze for originality; his satirical comedy, *Harqud am Bach oder Die Liga der Persönlichkeiten*, proved so dismal a failure, that it endangered the position of the director of the Burgtheatre, Paul Schlenther. A surprise to the hardened critics was the success of Ottomar Enking's provincial comedy, *Das Kind*, a play full of genuine pathos and humor, splendidly drawn characters, and here and there an undernote of Ibsenish philosophy.

FICTION. The new novel by Gustav Frensen, *Klaus Hinrich Baas*, is the first work that has come from him since he rose to the foremost rank among German novelists which presents a well-balanced, harmoniously organic whole, and is not burdened with messages either religious or social. Absolutely free from *Tendenz*, this story of a self-made man, who has risen from the obscurity of an impoverished peasant home in a Frisian village to partnership in a prominent business house in Hamburg, is an admirable achievement in story-telling and character-drawing. The boy, Klaus Hinrich, and his mother, the two women that successively share his life as wives, and even the more subordinate characters are portrayed with a vitality that visualizes and with a sym-

pathy that endears them to the readers. The book is likely to give the author the place in literature that the more exacting critics had so far denied him. A story of the commercial aristocracy of North Germany is Rudolf Herzog's *Hanseaten*. Three families are actively concerned in the plot of the narrative; one whose life is governed by duty, severe and implacable; another inspired with a wholesome joy of living; and between them a third, in which the husband's greed for vulgar pleasure is offset by the wife's ideal aspirations. The atmosphere is breezy and briny; the grip of reality is strong. Thomas Mann's *Königliche Hoheit* is a departure from the author's wonted milieu, that of the patrician society of North German commercial centres. He depicts life at the court of a little German duchy, hopelessly burdened with debt, and draws a sympathetic portrait of the sovereign who saves his country's finances by marrying an American heiress. The story is told with a charming remoteness from any definite locality and is a delightful piece of art. E. von Keyserling's *Beate und Mareile* is the story of a man and two women, admirably contrasting in the latter the resigned self-control of old nobility and the passionate self-will of a low-bred, though fascinating and gifted usurper. Ernst Zahn, the Swiss writer, who has recently come to the fore, is a master of the quiet twilight in which is passed the life of his heroes, people with strong wills and emotions, but fettered by fate and rarely free to realize themselves. Of such a life he tells in *Einsamkeit*. Dietrich Speckmann, another of the recent newcomers who are doing meritorious work, though not on particularly new lines, has given us in *Herzensheilige* a story full of intimate charm and of human sympathy. Hans Rudolf Bartsch admirably portrays in *Elisabeth Kött* a strong artistic personality, and in telling the life of his heroine has not a few moments of dramatic fervor and some descriptive passages of unusual power.

The young person plays an important part in German fiction to-day. Hermann Bahr tells in *Drut* the story of a boy's infatuation for a great actress and the decisive influence which this love has upon his life and character. Out of the alarming number of books that can be defined and labeled school and college tragedies, the novel by the Swiss writer, Emil Ermatinger, *Der Weg ins Leben*, stands out by its simplicity and sincerity and the wholesome lesson conveyed by the hero's experiences. Johannes Schlaf's story, *Am toten Punkt*, has also a youthful hero and son of an impecunious widow; but his coming into the house of an uncle given to psychopathic research and immediately making him the subject of his studies and experiments, places this book with the undecreasing number of works devoted to the exploitation of repulsively abnormal types. Two new writers have traced the lives of their unusual heroes from childhood to maturity, Josef Zytlaun giving us in *Crescenz Bühler* the story of a girl who is subject to cataleptic attacks, while Hans Kyser in *Der Blumenhiob* relates a life which from boyhood to its end is one succession of misfortunes. But the redeeming feature of these two books is in the delineation of the two characters and their serene acceptance of their uncommonly hard lot. Two of Germany's most gifted women writers have

given us stories of girls' lives that compel attention. Marie Eugénie delle Grazie treats in her novel, *Heilige und Menschen*, the problem of a convent education in a period when the world outside of the convent walls is alive with the ideas of Haackel, and has constructed a plot of dramatic interest and drawn characters of convincing vitality and strong individuality. Although she has nowhere denied her point of view, she does not obtrude it upon the readers, and the effect of the narrative is thoroughly artistic. Gabriele Reuter in *Sanfte Herzen* delineates with sympathetic insight the more passive and quiet natures that have little chance in the storm and stress of strenuous present day life. Hers is a book of a rare intimate charm.

The productiveness of some authors is amazing. George von Ompteda is among those who have published two books within the year: *Drocsigl* is a story of bourgeois ambition and aristocratic shiftlessness, in which the well-worn theme is redeemed by the cleverly individualized figure of the climber-hero; *Excelsior* is a story of the Alps full of the spell of altitude. Richard Voss, the indefatigable, has also two stories to his credit, one of which treats the more tragic aspects of Alpinism—*Alpentragödie*. Nor has Paul Heyse failed to give us the book to which one has come to look forward every year—*Die Geburt der Venus*. Contemporary history furnishes the background of Königsbrun-Schaup's *Die Bogumilen*, a story of Bosnia, and of Helene Mühlau's *Liviana Saltern-Santos*, of which the Chilean leader, Balmaceda, is the hero. Other authors have gone back to mediæval themes, as Emil Lucka in his story, *Isolde Weissand*, August Sperr in *Richiza*, and Bruno Wille in *Die Abendburg*, a story of the Crusades, full of the adventurous atmosphere of the period, but with an ethical meaning for all times. The venerable Julius Wolff has contributed a novel which derives its title, *Der Sachsenspiegel*, from a code of civic law, traces whereof still subsist in Northern Germany. Apart from all these stands Ludwig Ganghofer's *Lebenslauf eines Optimisten*, a charming book of childhood, presumably autobiographical.

Among the volumes of short stories, Otto Julius Bierbaum's *Sonderbare Geschichten* are fair specimens of the author's quaint and capricious originality; Hermann Stehr's *Drei Nächte* reflects the seriousness and sincerity of the writer, whose stories have done as much for Silesia as Gerhart Hauptmann's plays; Keyserling's *Bunte Herzen*, like his novels, deal with lives that pulsate with the intensity of passion; while the stories of Rudolf Stratz collected under the title, *In zwölfter Stunde*, are full of the gruesome spirit of the hour of spooks. A book distinct from all these by subject-matter and style is *Murrellen*, by Wilhelm Fischer, a book of tales of charming simplicity, rippling on like the river from which they derive their title among scenes of rural life remote from the world. Otto Ernst's book, *Vom grüngoldnen Baum*, is a volume of trifles as disappointing to admirers of his *Asmus Sempers* as his latest play to those who applauded *Flachsmann als Erzieher*. Adolf Wilbrandt's pen is never idle, though his recent books, including *Op. 23 und andere Geschichten*, fall short of one's expectations. Rosegger's *Lasset uns von Liebe reden* bears the pathetic sub-

title, *Letzte Geschichten*, and Liliencron's posthumous volume is called *Letzte Ernte*.

POETRY. Books of verse have been numerous, but their quality only deepens the regret that the little volume entitled *Gute Nacht* is to be the last to bear a name dearer than any other to the present generation, and probably the only one that will survive, Detlev von Liliencron. Germany has lost in him the strongest and sanest personality of the modern school and its most inspired poet. Other posthumous volumes of unusual interest were the epic poem, *Das Alexanderlied*, by the poet-painter of Bremen, Arthur Fitger; *Sein und Schein*, by Wilhelm Busch, and *Letzte Gedichte*, by Ernst von Wildenbruch. There have been volumes of lyrics by Bruno Wille, Rainer Maria Rilke, Alfred Mombert, Wilhelm Weigand, Richard Schaukal and Hans Bethge, all of them writers of established position in the world of German poetry. Hans Müller's book, *Die Rosenlaute*, shows a less marked physiognomy than his stories and plays. Hans Kyser's *Einkehr* has much of the spirituality that distinguished his story. Hans von Wolzogen, the faithful champion of Richard Wagner, has published a book of religious verse. Max Geissler's *Soldatenballaden* have in them the possibility of popularity. Gustav Schiller's *Gottsucher-Lieder*, on the contrary, appeals to the few. A book of verse by Christian Wagner, a poet who about a dozen years ago sprung from the people, *Späte Garben*, is distinguished by a wholesome philosophy and by a simple dignity of language. Epic poems have been rather more plentiful. Richard Zoosmann has written *Dantes letzte Tage*, Max Geissler *Die Rose von Schottland*, and Waldemar Bonsels *Don Juans Tod*. But the most important work coming under this head is Hans Benzmann's book of Christ poems, *Eine Evangelienharmonie*. Among the anthologies may be mentioned a selection of variety verse: *Die zehnte Muse*, compiled by Maximilian Bern; a volume of folksongs, *Der Lindenbaum*, edited by Hermann Hesse, Emil Strauss, and Martin Lang, and a volume, *Neue deutsche Gedichte*, published for the benefit of the Richard Wagner scholarship fund.

MISCELLANEOUS. The *causerie* in which the French excel and which is rather foreign to the more ponderous pace of German prose, has been successfully employed by Georg Herrmann in a thoughtful little book called *Sehnsucht*. More ambitious and less graceful in style was Arno Nadel's book, *Aus letzten und vorletzten Gründen*. Marie Ebner-Eschenbach has also collected a little book of prose sketches and aphorisms and appropriately called it *Spätsommer*. Wilhelm Bölsche, who as a nature writer occupies a unique position, published a book of thoughts on nature and art—*Auf dem Menschenstern*. Karl Scheffler's essays, *Idealisten*, contain no little criticism of modern Germany. Alexander von Gleichen-Russwurm has written on social customs in *Geselligkeit, Sitten und Gebräuche der europäischen Welt*. The sketches in Felix Salten's book, *Das österreichische Antlitz*, offer an interesting interpretation of the Austrian temperament. Unusually rich in suggestion are these books of travel: Hermann Bahr's *Dalmatinische Reise*, Meyer Graefe's *Spanische Reise*, and Karl Scheffler's *Paris*. In a book called *Eroberer*, Ludwig Brinkmann attempts an interpretation of the American people.

BIOGRAPHY. Eduard Engel's *Goethe—der Mann und sein Werk* heads the list of numerous contributions to Goethe biography, among them his correspondence with the Humboldts, with Frau von Stein and other friends, the letters of his mother, and a group of character sketches by Gertrud Baeumer, Dr. phil.: *Goethes Freundinnen*. There have been popular editions of Theobald Ziegler's life of *Schiller*, and numerous volumes of letters, among them those of Schiller's youth, selections from his correspondence with Charlotte von Lengefeld before their marriage, and a volume of her own letters to her friends. A work of literary and human interest is the first inclusive biography of *Johann Christian Guenther*, based upon the diaries of the erratic genius. S. Rahmer has written a book on *Kleist als Mensch und Dichter*, and *Friedrich Hebbel* has been made the subject of studies by Oskar F. Walzel, Anna Schapire and others. Artistically, Josef Ettlinger's *Benjamin Constant* ranks highest in this year's biographies. Gustav Karpeles has given us the memoirs of *Heine*, based upon letters and diaries. A study of the personality of *Wilhelm von Polenz*, by Adolf Bartels, has been published simultaneously with an edition of the complete works of von Polenz. Friedrich Paulsen tells the story of his youth in a volume entitled *Aus meinem Leben*.

HISTORIES OF LITERATURE, CRITICISMS, ETC. Eduard Engel has written a brief and popular history of *German Literature*; Dr. Leon Kellner a history of *English Literature in the Victorian Reign*. Karl Wolfskehl and Friedrich von der Leyen have edited the oldest specimens of German poetry, and Richard M. Meyer a selection of folksongs and church hymns—*Meisterstücke des deutschen Volks- und Kirchenliedes*. German Shakespeare literature has been increased by Alexander von Gleichen-Russwurm's *Shakespeares Frauengestalten* and a series of studies by Arthur Boehlingk, *Shakespeare und unsere Klassiker*. Ricarda Hush's *Risorgimento* is a volume of strongly drawn portraits from modern Italian history. Max Nordau is the author of *Der Sinn der Geschichte*.

Since bookmaking is being considered more as an art, new editions of old works have multiplied at an amazing rate. Translations from foreign authors, classical and modern, are far more numerous on the German than on the American or English book market. Of English authors, George Bernard Shaw is the one whose works are now immediately converted into German; editions of the works of Oscar Wilde are much in demand. George Meredith, too, is being translated. Among American writers thus distinguished are Ralph Waldo Trine and Gerald Stanley Lee.

GERMAN METHODIST CHURCH. See EVANGELICAL ASSOCIATION.

GERMAN NEW GUINEA, or KAISER WILHELM LAND. A protectorate of Germany, in the northwestern part of the island of New Guinea. Estimated area, about 70,100 square miles; estimated population, about 110,000. In 1908 there were over 200 foreign colored inhabitants (mostly Chinese) and 184 whites (162 Germans). The cultivated area is reported at only 4781 hectares, planted chiefly to coco-palms and rubber. In 1907 imports amounted to 815,000 marks; exports, 303,000

marks (mostly copra). Estimated revenue for 1908-09 balanced at 1,523,469 marks (including Imperial subvention of 1,141,569 marks); for 1909-10, 1,722,225 marks (subvention, 1,065,000 marks). The seat of government is Herbertshöhe, in the Bismarck Archipelago. Attached to German New Guinea, for administrative purposes, are the Bismarck Archipelago, the Caroline Islands, the German Solomon Islands, the Ladrone Islands, and the Marshall Islands.

GERMAN REFORMED CHURCH. See REFORMED CHURCH IN THE UNITED STATES (GERMAN).

GERMAN SAMOA. A dependency of Germany in the southern Pacific, including Savaii and Upolu (the two largest of the Samoan Islands) and several small adjacent islands. Savaii has an area of 660 square miles and a population (1906) of 12,816; Upolu, area, 340 square miles, and population (1906), including Manono and Apolirna, 20,662. In 1908 there were 1050 Chinese, 938 other foreign colored, and 436 whites (261 Germans). The native inhabitants are nominally Christian. Mission schools have over 8000 pupils. Cacao and rubber are cultivated, but the chief product is copra. The white planters depend largely upon Chinese labor. Copra and cocoa beans are the leading exports. The principal imports are haberdashery, kerosene, provisions, etc. Imports and exports in 1906 amounted to 2,889,000 marks and 3,026,000 marks respectively; in 1907, 2,825,957 marks and 1,769,800 marks respectively. Estimated revenue and expenditure for 1909-10 balanced at 763,530 marks. The residence of the Governor is at Apia, formerly the capital of the Samoan kingdom.

GERMAN SOLOMON ISLANDS. The islands of Bougainville and Buka, east of the Bismarck Archipelago, accorded to Germany in November, 1899, and attached administratively to German New Guinea. Area, about 4500 square miles; population, about 45,000. The chief commercial products are tortoise shell and sandalwood.

GERMAN SOUTHWEST AFRICA. A protectorate of Germany on the Atlantic, between Portuguese West Africa and British South Africa (excepting Walfish Bay, which belongs to Cape Colony). Estimated area, 317,950 square miles; estimated population, about 200,000 (Hottentots, Bushmen, Bantus, and Damaras). The natives, especially the Hottentots and Damaras, have repeatedly made vigorous resistance to German occupation. There was a European population of 8213 (6215 Germans) in 1908, when the military force numbered about 4600 men. There are several small government schools, while mission schools have about 3000 pupils. Government experiment stations encourage farming, gardening, and forestry, and some cotton, tobacco, wine, fruits, and vegetables are produced. But agriculture is backward, the chief industry being pastoral. In 1908 live-stock included 193,200 sheep; 73,331 cattle, 160,237 goats (3956 angora), 6533 horses, 5800 mules, 2298 asses, 2258 swine, 297 camels. The southern and much of the eastern part of the protectorate is barren. Copper is mined in the Otavi region. In 1908 diamonds were discovered near Lüderitz Bay and a company was formed for working the field. From

September to December in that year the output was valued at about \$268,000. In 1907 imports were valued at 32,396,000 marks (25,790,000 from Germany), and exports 1,616,000 marks (1,524,000 to Germany). In July, 1908, the Lüderitz Bay-Keetmanshoop Railway was completed, the total mileage open to traffic in the protectorate being 780, and 106 miles were still under construction. Estimated revenue and expenditure for 1909-10 balanced at 31,029,816 marks (17,124,914 marks Imperial subvention). The seat of government is at Windhoek. Thousands were attracted to the country in 1909 by the diamond mining. A great improvement in the quality as well as an increase in the quantity of the stones found was reported. Many new companies were formed.

GERMANY. An empire of Europe extending from France to Russia. The capital is Berlin.

AREA AND POPULATION. The area in square miles and the population, according to the census of December 1, 1905, of the twenty-five German states and the Reichsland of Alsace-Lorraine are as follows:

States	Area	Population	Pop. per sq. m.
Prussia	134,623	37,293,324	277.3
Bavaria	29,282	6,524,373	222.7
Württemberg	7,828	2,302,179	305.5
Baden	5,821	2,010,728	345.3
Saxony	5,787	4,508,601	778.8
Mecklenburg-Schwerin	5,135	625,045	123.3
Hesse	2,965	1,209,175	407.6
Oldenburg	2,479	438,856	176.8
Brunswick	1,424	485,958	342.5
Saxe-Weimar	1,388	388,095	277.8
Mecklenburg-Strelitz	1,131	103,451	91.5
Saxe-Meiningen	953	268,916	282.2
Anhalt	906	328,029	369.4
Saxe-Coburg-Gotha	755	242,432	317.3
Saxe-Altenburg	511	206,508	404.1
Lippe	469	145,577	310.4
Waldeck	433	95,127	136.5
Schwarzburg-Rudolstadt	363	96,825	266.7
" Sondershausen	333	85,152	255.7
Reuss Younger Line... ..	319	144,584	453.2
Schaumburg-Lippe... ..	131	44,992	343.4
Reuss Elder Line... ..	122	70,603	578.7
Hamburg	158	874,878	5467.9
Lübeck	115	105,857	920.5
Bremen	89	263,440	2661.0
Alsace-Lorraine	5,600	1,814,564	323.8
Total	208,830	60,641,278	290.4

According to the occupation-census of June 11, 1907, the population of the empire was 61,720,529; the estimated population on June 30, 1908, was 62,982,000, and on June 30, 1909, 63,886,000. The 1907 occupation-census showed the following results, the first column indicating the number of persons directly engaged, the second the number indirectly engaged (including domestic servants), and the third the total, in the given occupations:

Manufacturing	10,292,976	13,111,400	23,404,376
Agriculture	9,732,472	7,510,463	17,242,935
Commerce, trans- portation, etc....	3,477,626	4,800,613	8,278,239
Mining	963,278	2,018,883	2,982,161
Professions	1,087,336	1,539,424	2,626,760
Various service, ex- clusive household	471,695	321,058	792,748
Army and navy...	651,194	129,172	780,366
Forestry, fish'g, etc.	150,785	287,456	438,241
Without occupation	3,404,983	1,769,720	5,174,703
Total	30,232,345	31,488,184	61,720,529

In 1907 there were 503,964 marriages, 2,060,973 births (including stillbirths), 1,178,349 deaths (including stillbirths), and 61,040, stillbirths. The number of emigrants in 1907 was 31,696 (30,431 to the United States); in 1908, 19,883 (17,951 to the United States). The larger cities, with population in 1905, are: Berlin, 2,040,148; Hamburg, 802,793; Munich, 538,983; Dresden, 516,990; Leipzig, 503,672; Breslau, 470,904; Cologne, 428,722.

EDUCATION. Education in Germany is free and compulsory, and the number of illiterates is almost negligible. In 1906 public elementary schools numbered 60,584, with 166,597 teachers (29,384 female) and 9,737,262 pupils; private elementary schools, 614, with 42,004 pupils. Expenditure on the public elementary schools amounted to 522,861,000 marks. Secondary (1908) are reported as follows: Gymnasias 499; progymnasias, 83; realgymnasias, 138; realschulen, 338; oberrealschulen, 86; public normal schools, 226; other public schools, 35; private schools, 56. The ten State-aided technical high schools (of collegiate rank) had in 1908 an aggregate teaching staff of 753, with 14,149 students. There are large numbers of institutions for various special or technical instruction. The 21 universities had in the winter of 1907-8 46,471 matriculated students (320 women) and 5653 non-matriculated students (2486 women).

AGRICULTURE. Although Germany virtually supports nine-tenths of her population by her own produce, the empire is becoming more and more a manufacturing country, and, with the continuous increase of population, the question of food supply is a constant and pressing one. In 1907 27.95 per cent. of the population were supported by agriculture, against 34.9 per cent. in 1895; the corresponding figures for manufacturing are 37.92 and 35.52 respectively; for commerce and transportation, 13.41 and 11.52 respectively; for mining, 4.83 and 3.57 respectively. In 1900 48.6 per cent. of the total area was under cultivation, 16 per cent. consisted of meadow and pasture, and 26 per cent. forest. The principal German crops are shown in the table on page 286, the production in 1906 and 1907 being given and the area in acres and the production in 1908 and 1909.

The estimated acreage under sugar beets in 1909 was 1,074,622, and the production 11,719,931 tons. Wine production in 1908 was placed at 3,135,953 hectolitres, valued at 126,811,000 marks; tobacco, in 1907, 28,839,814 kilos; hops, in 1907, 26,340,000 kilos. On December 2, 1907, the live-stock in the empire were numbered as follows: Horses, 4,345,043; mules and asses, 10,991; cattle, 20,630,544; sheep, 7,703,710; swine, 22,146,532; goats, 3,533,970. The number of animals slaughtered for food in 1907 was as follows: Calves up to three months old, 4,378,742; bovines over three months, 3,748,282; sheep and lambs, 2,776,790; swine, 22,469,000; goats, 1,197,799; horses, 135,775; dogs, 6461. See AGRICULTURE.

FORESTRY. The empire has nearly 35,000,000 acres of forest, of which 31.9 per cent. belongs to the state. Of the whole forest area, about one-third is under foliage trees and about two-thirds under conifers. German scientific forestry has resulted in raising the average yield of wood per acre from 20 cubic feet in 1850 to 65 cubic feet in 1904, and in trebling the pro-

Crops	1906	1907	1908		1909	
	Production	Production	Area	Production	Area	Production
	<i>Bushels. a</i>	<i>Bushels. a</i>	<i>Acres</i>	<i>Bushels. a</i>	<i>Acres</i>	<i>Bushels. a</i>
Wheat, winter	151,205,000	96,042,000	4,147,500	123,081,000	3,944,400	117,502,000
Wheat, spring	13,549,000	31,802,000	509,400	15,361,000	581,000	30,468,000
Total wheat.....	144,754,000	127,844,000	4,656,900	138,442,000	4,525,400	158,000,000
Rye, winter	372,954,000	377,377,000	14,812,600	416,965,000	14,848,400	440,688,000
Rye, spring	5,994,000	6,773,000	510,000	5,729,000	500,900	6,079,000
Total rye.....	378,948,000	384,150,000	15,122,600	421,692,000	15,140,200	446,767,000
Barley	142,901,000	160,650,000	4,025,200	140,539,000	4,068,200	160,552,000
Oats	580,875,000	650,325,000	10,564,500	550,131,000	10,650,100	628,718,000
Potatoes	1,577,653,000	1,673,246,000	8,136,300	1,702,803,000	8,213,100	1,716,161,000
	<i>Tons. b</i>	<i>Tons. b</i>		<i>Tons. b</i>		<i>Tons. b</i>
Clover hay	15,151,500	10,099,000	5,144,500	12,893,000	5,044,900	9,875,000
Alfalfa hay	1,872,800	1,544,700	589,600	1,742,000	600,500	1,461,000
Meadow hay:						
Irrigated			1,504,000	3,162,000	1,288,400	2,609,000
Other			13,441,500	26,684,000	13,442,800	21,797,000

a Bushels of weight: Wheat and potatoes, 60 pounds; rye, 56 pounds; barley, 48 pounds; oats, 32 pounds. b Tons of 2000 pounds.

portion of the saw timber secured from the average cut. During the same period the money returns from an average acre of forest increased seven-fold. At present the German forests are probably in better condition than ever before. See FORESTRY.

MINERALS AND METALS. German figures for mineral and metal production include those of the Grand Duchy of Luxemburg. The total amount of minerals raised in 1906 was valued at 1,637,000,000 marks; in 1907, 1,845,000,000 marks. The following table shows the values, in thousands of marks, of the principal mineral products in 1907 and 1908, with quantities, in metric tons, for the latter year:

Minerals	1907	1908	
	1000 marks	Metric tons	1000 marks
Coal	1,394,271	148,537,417	1,531,740
Lignite	156,347	66,746,057	169,878
Graphite	201	4,844	248
Asphalt	1,087	89,009	774
Petroleum	7,056	141,900	9,942
Rock salt	5,989	1,327,453	5,982
Kalnit.	36,117	2,589,804	37,027
Other potash salts.	30,527	3,500,635	33,885
Iron ore	119,186	24,224,762	98,129
Zinc ore	42,293	706,441	34,985
Lead ore	20,132	156,842	15,037
Copper ore	26,702	727,384	26,357
Silver and gold ore	1,126	7,654	862
Cobalt ores	425	6,081	500
Manganese ores	881	67,693	815
Pyrites	1,722	219,455	1,988

A table, corresponding to the foregoing, for the principal salts products, is as follows:

Salts	1907	1908	
	1000 marks	Metric tons	1000 marks
Salt	16,473	665,413	18,519
Potassium chloride	53,108	508,622	56,251
Magnesium chloride	500	29,775	562
Glauber salts	2,229	72,667	1,996
Potassium sulphate	9,319	55,755	8,563
Magnesium sulphate	870	42,976	826
Potassium magnesium sulphate	2,654	33,149	2,786
Sulphate of alumina	3,728	54,122	3,348

The products of reduction works are reported for 1907 and 1908 as follows:

Reduction products	1907	1908	
	1000 marks	Metric tons	1000 marks
Pig iron	824,077	11,805,321	715,314
Zinc	96,573	216,490	86,006
Lead (pigs, bars, etc.)	54,479	164,079	46,541
Litharge	1,772	5,339	1,622
Copper ingots	61,497	30,001	37,688
Sulphuric acid, undis.	34,890	1,257,218	34,218
" " distilled	5,117	128,522	5,214
Products from pig iron:			
Castings, second fusion	480,824	2,306,678	422,426
Wrought iron and steel—			
Crude blooms, mill			
bars and cement steel	4,821	26,306	2,978
Finished wrought iron			
products	104,722	491,318	75,423
Cast iron and cast steel—			
Ingots	65,034	690,186	58,768
Slabs, billets, etc.	191,260	1,899,228	166,256
Finished cast iron			
products	1,319,254	8,125,749	1,164,626

FISHERIES. Exclusive of herring to be salted, the catch in 1907 was valued as follows: From the North Sea, 14,166,657 marks (provisional); from the Baltic, 6,233,050 marks; total, 20,399,707 marks.

MANUFACTURES. The trend of population continues away from the farm to the factory. And there is a constant tendency toward the development of larger industrial establishments. The small factory is being absorbed by the combination. The occupation, or industrial, census of June, 1907, shows that the number of industrial employees in that year had increased, as compared with 1895, in a ratio about four times that of the firms employing them, and the proportionate increase of female employees was greater than that of male. The cost of living in Germany has risen along with the increasing population, the movement from country to city, and the development of capital combination; so that, according to the results of an investigation recently conducted by the Imperial government, there is at present the narrowest margin between the income of the

German workingman and the cost of his actual necessities. It appears that Germany has taken a place in the first rank of manufacture at a peculiarly heavy price paid by the German people.

The following statistics of the textile industry of Germany are given in the *Imperial Yearbook* for 1909:

Classification	Firms	Workmen	Workwomen
Preparation of spinning and fibre material....	1,012	11,435	11,363
Spinning	3,545	82,711	124,314
Weaving	67,484	246,718	236,738
Hair plaiting and weaving	653	2,649	1,833
Hosiery	30,842	39,280	64,716
Lace	27,334	26,199	53,030
Bleaching, dyeing, printing	12,191	82,481	35,614
Fringe making	11,570	15,216	20,099
Roping	5,976	15,882	7,734
Felt and blanket making	611	4,338	2,960
Total	161,218	529,909	558,381

crease in 1908. In 1906-7 there were 65,405 distilleries in operation, producing 3,841,207 hectolitres of alcohol; in 1907-8, 66,745 distilleries, producing 4,018,311 hectolitres.

COMMERCE. The laws and rules of the German Customs Union (Zollverein), up to March 1, 1906, applied to all the states of the empire, excepting the free ports of Hamburg, Bremerhaven, Cuxhaven, and Geestemünde, a few districts of Baden (with less than 4000 inhabitants) on the Swiss frontier, and the island of Helgoland; included in the customs territory (Zollgebiet) were the Grand Duchy of Luxemburg and the Austrian communes of Jungholz and Mittelberg. On March 1, 1906, the customs territory, retaining all of its area at that time, was enlarged so as to include all Germany excepting the Baden districts above mentioned and Helgoland. In the special trade (imports for consumption and exports of domestic produce), the total imports and exports in marks are shown in the table below.

The general classification of the imports and

	1906	1907	1908
Imports:			
Merchandise	8,021,891,000	8,746,678,000	7,664,021,000
Precious metals	416,663,000	256,645,000	413,072,000
Total	8,438,554,000	9,003,323,000	8,077,093,000
Exports:			
Merchandise	6,359,029,000	6,850,890,000	6,398,527,000
Precious metals	118,579,000	249,693,000	82,926,000
Total	6,478,608,000	7,100,583,000	6,481,453,000

On March 1, 1909, the estimated number of cotton spindles in operation was 9,881,321, and in construction 416,258; the number in operation in Germany was exceeded only by that in the United Kingdom (53,471,897) and in the United States (27,846,000). During the year ending August 31, 1908, the mill consumption of cotton was 1,793,180 bales. Finished products of iron and steel in 1907 were valued at 1,952,000,000 marks, against 1,754,000,000 marks in 1906. In 1909 reports of the leading iron and steel works showed an average decrease of profits of about 7 per cent. as compared with 1908. At the end of 1907 there were 8618 chemical factories, with 207,000 operatives. In the ceramic industry there is a union of 101 factories; reports from the majority of these in 1909 showed a serious depression of business. The reported number of glassworks in 1908 was 374, with 62,159 employees. The shipbuilding industry in 1908 was not prosperous; during that year there were 99 (against 435 in 1907) sea-going steamships, of 147,270 gross tons, built in German shipyards; at the end of the year 67, of 187,362 tons, were in course of construction. For 1907 the output of the German toy industry, which centres at Nuremberg, was valued at about \$25,000,000. The paper industry suffered depression in both 1908 and 1909. In the year 1907-8 the production of raw (beet) sugar amounted to 1,842,092 tons; refined (beet) sugar, 1,566,895 tons; quantity of beets used 13,491,424 tons. In the year ending March 31, 1907, beer production was as follows: Beer excise district, 45,867,000 hectolitres; Bavaria, 18,364,000; Württemberg, 4,017,000; Baden, 3,278,000; Alsace-Lorraine, 1,381,000; total, 73,159,000; the Bavarian production showed a slight de-

crease in 1908. In 1906-7 there were 65,405 distilleries in operation, producing 3,841,207 hectolitres of alcohol; in 1907-8, 66,745 distilleries, producing 4,018,311 hectolitres.

exports of merchandise in 1907 and 1908 was as follows, in millions of marks:

Classes	1907		1908	
	Imp.	Exp.	Imp.	Exp.
Food substances.....	2,217.9	539.9	2,042.6	679.8
Live animals.....	226.8	11.8	224.6	9.5
Raw materials.....	4,910.4	1,656.4	4,154.2	1,577.2
Manufactures	1,391.6	4,638.1	1,242.6	4,182.1
Total	8,746.7	6,845.2	7,664.0	6,398.6

The principal articles of merchandise entered for consumption in 1908 were valued, in millions of marks, as follows: Cereals, 784.1; cotton, 502.5; hides and skins, 392.8; wool, 390.5; coal, 271.8; chemicals and drugs, 264.1; timber, lumber, etc., 244.6; copper, 198; coffee, 163.6; silk, 157.4; iron, 142.1; eggs, 137; fruits, 129.8 (tropical fruits, 63.7); leaf tobacco, 125.5; wheaten products, 118.5; linseed, 101.2; animal fats, 99; rubber and gutta-percha, 98.7; rice, 97.8; woolen yarn, 97.5; cotton yarn, 87.8; fish, 85.9; oil-cake, 85.9; cocoanuts and copra, 76.3; flax and hemp, 76; petroleum, 75.3; butter, 72.7; machinery, 68.5; other iron manufactures, 65.2; silk goods, 64.5; lead, 45.8; cacao, 45.5.

The values, in millions of marks, of the leading domestic exports in 1908 were: Iron manufactures (excepting machinery), 704.3; machinery, 415.9; coal, 398.9; cotton goods, 350.2; chemicals and drugs, 331.7; woolen goods, 258.7; cereals, 224.2; dyes and colors, 208.7; apparel, 196.8; sugar, 195.7; paper, 184.3; electrical apparatus, etc., 177.3; pottery, 174.8; silk goods, 167; leather, 165.1; pelts, etc., 114.1; hides and skins, 111.2; gold and silver manufactures, 107; glass and glassware, 104.1; copper manufactures, 102.5; ships, 97.8; wool, 94.8; leather

manufactures, 77.4; toys, 66.8; woolen yarn, 66.1; books, maps, etc., 61.8; musical instruments, 56.6; cotton (raw and waste), 56.5.

In 1907 and 1908 the special commerce (exclusive of precious metals) with the principal countries of origin and destination was valued, in millions of marks, as follows:

Countries	1907		1908	
	Imp.	Exp.	Imp.	Exp.
United States	1,319.3	652.3	1,282.6	507.5
Russia	1,069.9	483.3	920.8	505.5
Austria-Hungary	812.3	716.6	751.4	736.8
Great Britain	976.6	1,060.4	696.9	997.4
Argentina	442.5	179.2	446.0	147.0
France	453.6	449.1	420.0	437.9
British East India	407.1	104.7	306.9	95.4
Belgium	296.7	342.9	262.1	322.8
Italy	285.4	302.9	235.9	311.3
Netherlands	227.5	452.1	230.8	463.7
Brazil	196.0	104.1	198.6	84.5
British Australasia	228.0	61.1	185.9	58.0
Switzerland	210.8	446.4	177.2	401.1
Dutch East Indies	187.1	42.6	173.2	40.7
Sweden	172.0	186.6	145.1	174.1
Chile	143.9	84.7	133.6	52.4
Denmark	123.0	207.1	120.9	200.6
Spain	139.9	65.6	115.0	65.9
Rumania	149.8	68.6	73.7	70.8
China	56.7	63.2	70.7	50.7
Egypt	80.4	39.5	63.1	30.9
British West Africa	73.3	13.9	58.9	11.7
British So. Africa	45.9	28.9	43.8	32.0
West Indies and Guiana	40.2	30.6	33.6	28.1
Turkey in Asia	38.0	28.3	33.0	24.7
Central America	34.2	12.7	31.3	10.0
Norway	31.3	85.6	29.1	97.0
Uruguay	22.6	33.4	26.1	23.7
Mexico	21.6	58.7	19.9	36.9
Japan	29.4	102.4	19.0	94.6
Greece	22.2	11.4	18.5	12.0
German colonies	22.2	36.8	22.8	35.5

Provisional figures for the first six months of 1909 showed an increase of about 169,000,000 marks in imports and about 94,000,000 marks in exports over the corresponding period of 1908.

SHIPPING. The following figures for shipping relate to 1907; they include vessels in both the foreign and the coasting trade, but a vessel entering more than one port on a single voyage is counted only once. Total entrances, 104,125 vessels, of 28,054,646 tons net; 93,402 vessels, of 26,110,154 tons, entered with cargo; 10,663 vessels, of 1,944,492 tons, entered in ballast; 69,355 vessels, of 25,182,869 tons, were steamers. Total clearances, 104,651 vessels, of 28,074,365 tons net; 75,819 vessels, of 17,888,818 tons, cleared with cargo; 28,883 vessels, of 10,185,549 tons, cleared in ballast; 69,650 vessels, of 25,205,466 tons, were steamers. Of the total entrances, 79,523 vessels, of 15,821,653 tons, were German (53,980 steamers, of 13,878,412 tons); and 24,602 vessels, of 12,232,993 tons, were foreign (15,375 steamers, of 11,304,457 tons). Of the total clearances, 80,150 vessels, of 15,877,400 tons, were German (54,204 steamers, of 13,924,460 tons; and 24,501 vessels, of 12,196,965 tons, were foreign (15,356 steamers, of 11,281,006 tons). Of the foreign net tonnage entered and cleared nearly one-half was British and nearly one-fifth Danish.

The merchant marine on January 1, 1909, consisted of 4638 vessels, of 2,825,404 tons net, with crews numbering 72,450 (including 1953 steamers, of 2,302,910 tons, with 58,451 men). The vessels registered at North Sea ports numbered 3712, of 2,529,878 tons, with 64,139 men; those registered at Baltic ports numbered 926, of

295,526 tons, with 8311 men. Of the total, Hamburg had 1315 vessels, of 1,563,896 tons, with 32,446 men (707 steamers, of 1,288,278 tons, with 27,877 men); Bremen, 724 vessels, of 837,245 tons, with 22,841 men (462 steamers, of 670,213 tons, with 20,230 men); and Prussia, 2238 vessels, of 283,053 tons, with 13,152 men (631 steamers, of 218,148 tons, with 7709 men). On January 1, 1908, the merchant marine consisted of 4571 vessels, of 2,790,435 tons, with 71,853 men.

COMMUNICATIONS. The total length of railways in the empire on August 1, 1909, was 37,094 miles, of which 34,286 miles were owned or operated by the states. Of the total, 35,808 miles were standard gauge, and 1286 miles narrow gauge. Of government line, Prussia was credited with 22,825 miles; Bavaria, 4740; Saxony, 2034; Alsace-Lorraine, 1222; Württemberg, 1128; Baden, 1078. At the end of 1907 68.1 per cent. of the mileage was comprised in trunk lines, and 31.9 per cent. in auxiliary lines. On that date the standard-gauge roads had 24,259 locomotives, 50,097 passenger cars, and 511,150 freight and baggage cars, showing an increase of 43.7, 48.8, and 41.4 per cent. respectively over 1897. The total freight receipts (of the standard-gauge lines) in 1907 amounted to 1,783,720,000 marks, showing an increase of 59.6 per cent. over 1897; receipts from passenger traffic, 747,940,000 marks, showing an increase 58.2 per cent. A similar development during the decade is shown in the narrow-gauge roads. In 1904 the empire had over 8500 miles of inland navigable waterways. In 1909 it was reported that in the last twenty years Germany had expended \$150,000,000 on her waterways, and that the German-Austrian and Rhine-Elbe canals, already begun, contemplate the expenditure of nearly \$350,000,000. In 1908 there were in the empire 41,276 telegraph offices, with 130,772 miles of line and 386,438 miles of wire. Post-offices (1908) numbered 40,566.

FINANCE. The unit of value is the mark, worth 23.8 cents. For the fiscal year ending March 31, 1907, the Imperial revenue amounted to 2,376,613,000 marks (2,111,867,000 ordinary and 264,746,000 extraordinary); expenditure, 2,392,499,000 marks (2,157,354,000 ordinary and 235,145,000 extraordinary). Estimated revenue and expenditure, in thousands of marks, have balanced as follows, for fiscal years ending March 31:

	1908	1909	1910
Ordinary	2,339,291	2,615,397	2,630,369
Extraordinary	257,601	234,617	235,040
Total	2,596,792	2,850,014	2,865,409

For the fiscal year 1910, the principal items of estimated ordinary revenue were: Customs and excise duties, 1,203,278,000 marks; posts and telegraphs, 672,448,000; Federal contributions (paid in by the several states in proportion to population), 426,889,000; railways, 123,291,000. The larger estimated ordinary expenditures were: Army, 776,321,000 marks; posts and telegraphs, 590,034,000; treasury, 329,293,000; navy, 301,482,000; debt, 171,487,000; pension fund, 115,110,000; railways, 102,234,000.

At the end of 1907 the interest-bearing debt of the empire amounted to 4,003,500,000 marks, having increased by 200,000,000 marks during

the year; the non-interest-bearing debt, consisting of treasury bonds and paper money, stood at 594,000,000 marks, having increased by 84,000,000 marks during the year; total debt, 4,597,500,000 marks. As a partial offset against the debt there are several invested funds; the fund for invalids, on March 31, 1909, amounted to 130,189,835 marks; the war treasure fund (not invested, but preserved in gold), 120,000,000 marks. The empire came into existence in 1871 free of debt and with the enormous French war indemnity at its disposal. From 1900 to 1908 the actual total revenue fell short of the actual total expenditure so as to necessitate loans amounting to some 1,600,000,000 marks, and the burden of taxation, direct or indirect, is becoming heavier year by year.

The Imperial coinage (less amounts withdrawn) from 1871 to March 31, 1907, was as follows: Gold, 4,349,117,600 marks; silver, 850,789,200; nickel, 78,797,200; copper, 18,969,400; total, 5,297,673,400. The average financial condition of the five banks of issue in 1906 was: Liabilities: capital, 235,500,000 marks; reserve fund, 78,104; notes in circulation, 1,531,304,000; total (including other liabilities), 2,540,225,000. Assets: coin and bullion, 959,308,000 marks; notes of state and other banks, 75,975,000; bills, 1,104,051,000; total (including the assets), 2,540,225,000.

NAVY. The following figures relate to the effective navy. In 1909 there were 22 first-class battleships, and 8 under construction; 4 second-class battleships; 9 armored cruisers, and 3 under construction. The total tonnage of these 46 vessels is 654,334. The number and displacement of warships, built and building, of 1000 or more tons, and of torpedo craft of more than 50 tons, were as follows in 1909: Battleships of 10,000 tons and over, 32, aggregating 436,424 tons; armored cruisers, 12, of 151,693 tons; coast-defense vessels, 6, of 32,378 tons; cruisers 6000 to 3000 tons, 26, of 105,293 tons; cruisers 3000 to 1000 tons, 17, of 37,626 tons; torpedo-boat destroyers, 97, of 49,859 tons; torpedo boats, 33, of 5819 tons; submarines, 8, of 1600 tons; total 233 war vessels, of 820,692 tons. See NAVAL PROGRESS AND BATTLESHIPS.

ARMY. Military service is compulsory and universal, every German called upon to bear arms being liable to serve for 7 years in the regular army, two years of which, or in the case of the cavalry and horse artillery 3 years, are spent in the ranks and 5 or 4 years as the case may be with the army reserve. Then follows 5 years (3 years for cavalry and horse artillery) in the first ban of the Landwehr second line army, which involves two trainings of 14 days each for the dismounted branches only. Then comes service with the second ban to the soldier's 40th year, but without training periods, and finally he passes to the Landsturm or Home Defense Army, second ban, until he completes his 45th year. More men are recruited annually than are needed for the regular army and these are sent to the Ersatz Reserve where they undergo three trainings of 10, 6, and 4 weeks, and then pass to the Landsturm; or they may be enrolled at once in the Landsturm, first ban, which comprises all able-bodied men from 17 to 39 who have not served otherwise. The second ban is formed of those between 40 and 45 years of age. An important part of the organization are the "One-Year

Volunteers" who pay all their expenses and after training become eligible to act as officers in the Reserve and Landwehr. These numbered about 11,000 in 1909. In 1909 the German army was organized in 23 army corps in which were included the corps of guards and 3 Bavarian Corps. There were 216 regiments (615 battalions) of infantry and 18 battalions of chasseurs; 16 machine gun sections, 100 regiments (500 squadrons) of cavalry; 94 regiments (583 batteries) of field artillery; 18 regiments of garrison artillery; 29 battalions of engineers; 30 companies of railway troops; 19 companies of telegraph troops; 1 battalion of balloon troops; 1 company for testing, and 23 battalions of train. This army or first line on a peace footing amounted October 1, 1909, to 621,153, all ranks (25,559 officers, 85,450 non-commissioned officers, 503,705 men, and 6409 medical pay and other officers and men) and with it would be available 111,820 horses. To this quota the various states of the Empire contribute as follows: Prussia, 482,716; Saxony, 45,735; Württemberg, 24,102; Bavaria, 68,559.

In time of war to form a Field Army the regular establishment would be augmented by the addition of a reserve division to each of the 23 army corps and 11 cavalry divisions, so that the force as organized would comprise 962 battalions of infantry, 479 squadrons of cavalry, 828 batteries of artillery, 16 machine gun sections, 95 companies of engineers, affording a total strength of 984,000 infantry, 72,000 cavalry, 4968 field guns and 96 machine guns, or a total of about 1,165,000 men. The organized Landwehr was estimated at about 600,000, and the garrison troops of the Landwehr, the Ersatz and Landsturm at about 2,000,000, so that the total war strength of Germany could be stated at about 4,330,000 men.

The year 1909 witnessed the culmination of the increase of the army arranged for under the Army Law of April 1, 1905, which provided for an annual increase until a strength of 505,839 men, exclusive of one year volunteers, was reached. The new formation for 1909 dating from October 1 of that year were two battalions of infantry which completed the organization provided for. The military budget for 1909-10 amounted to £33,573,000 for permanent charges and £4,938,000 for special expenditure. These items with the extraordinary budget of £2,082,000 and a charge of £72,000 for military law made a total appropriation of £40,665,000 voted for military expenditures. This was a decrease of £2,113,000 from the military budget of the previous year and included a reduction on various special expenditures amounting to £300,000 made in the Reichstag, the first time such action had been taken in many years. New field uniforms for the German army were issued during the year and are the result of a long series of trials and experiments. The color is silver-gray and there is no difference in pattern and make for officers' uniforms over those of the rank and file, the badges of rank which are small, being worn on the collar and shoulders and being inconspicuous except at close distance.

GOVERNMENT. The executive authority is vested in the King of Prussia under the title of German Emperor. The Emperor in 1909, was William II., who was born January 27, 1859, and ascended the throne June 15, 1888. The heir-apparent is Prince Frederick William,

born in 1882. The Imperial ministers, appointed by the Emperor, do not form a single body (cabinet), but manage their departments independently of one another; all, however, are under the supervision of the Imperial Chancellor, who, unlike them, is not responsible to the Imperial legislature. This body consists of an upper house, or Bundesrath, which is presided over by the Chancellor, and a lower house, or Reichstag. Members of the former (58) are chosen by the governments of the several states and those of the latter (397) are elected by popular vote. The Imperial Chancellor in 1909 was Theobald von Bethmann-Hollweg. The Imperial Ministers, or Secretaries of State, were: Foreign Affairs, Wilhelm von Schoen; Interior, Herr Delbrück; Colonies, Herr Dernburg; Justice, Dr. Lisso; Navy, Admiral von Tirpitz; Treasury, Herr Wermuth; Posts, Herr Kraetke.

HISTORY

THE BUDGET QUESTION. The main question of the closing months of 1908 was the government's plan for raising the enormous sum of 500,000,000 marks demanded in the autumn of that year in the so-called "financial reform" programme. This included several new taxes which encountered serious opposition and the matter was referred to a Finance Reform Committee, which continued its discussion in 1909. It was unable to reduce materially the estimates and despite the opposition to the specific measures of the government, new taxation in some form was generally admitted to be unavoidable. The taxes on gas and electricity encountered such serious opposition that they seemed impracticable. The taxes on beers, wines, spirits and tobacco seemed a reasonable source of revenue, but these too encountered opposition. The Commercial Diet of Berlin on January 11 proposed a tax on beer and the tobacco retail trade and condemned the government's plan for a monopoly of spirits. The proposed succession tax caused special indignation among the Conservatives and Agrarians. When Chancellor von Bülow presented his financial scheme in November, 1908, he had cited the authority of the well-known economist, Professor Wagner. This, however, carried little weight with the interested classes, and when Professor Wagner at a meeting of the Tax Reform League (Agrarian) condemned the selfish attitude of the propertied classes, declaring that a succession tax could not be avoided since no Imperial direct tax was practicable, it served only to increase exasperation. The situation of the government became embarrassing. By March 20, little was left of the government programme, the Committee having rejected the government proposals as to the monopoly of spirits, as to matricular contributions and as to death duties, and the taxation of newspaper advertisements, gas and electricity. On April 21, Chancellor von Bülow warned the Reichstag that new taxation sufficient to provide 500,000,000 marks must be passed during the session. A new form of inheritance tax would be substituted, new taxes would replace those on gas and electricity, and the tax on railway tickets would be improved. From April 10 on, the Finance Reform Committee encountered serious difficulties in Parliament on account of the opposition of the Conservative-Centre to direct taxes. In place of the succession tax and any form of tax on

bequeathed estates the Conservatives proposed a tax on increased values. The National Liberal press opposed this plan and declared the *bloc* at an end, but the Conservatives professed to regard this as an empty threat. The government objected on the score of lack of time to the drafting of a tax on increased values, but the Conservatives hastily prepared such a measure, on the basis of increased values on lands, town sites, stocks and shares. The government declared a tax on bequeathed estates an essential part of its programme. The Conservatives and Centre were opposed. On May 1, the Finance Committee rejected all the direct tax proposals. On May 11 it agreed on a scheme for a tobacco tax which, however, would yield less than half of the amount that the government had declared essential. It rejected the government proposal for a tax on still wines and while it accepted a tax on sparkling wines the yield would be considerably less than the government had demanded. This was true also of the proposal as to spirits. Von Bülow's proposed improvement in the railway ticket tax involved the taxation of fourth-class railway tickets and was vigorously opposed by the popular press. On May 28, Dr. Paasche, the chairman of the Committee, having been outvoted by the Conservatives, resigned, and thereupon the National Liberal and Radical members withdrew. A deadlock resulted and the Reichstag adjourned to June 15. The main question now was what measures should be taken to keep the *bloc* united. The course of the National Liberals and Radicals in refusing to take part in the discussions of the Finance Committee on May 28 was supported by the Socialists. The point at issue was the introduction into the discussion of proposals that had not been previously referred to the Reichstag. The Conservatives, Centre, Poles, and Anti-Semites were taking the place of the Conservative-Liberal *bloc*. The Conservatives were making proposal after proposal for indirect taxes in order to bar the way to the hated death duties. The scheme of taxation supported by the Committee included a tax on milling products, exports of coal, bonds and securities, higher duties on tea and coffee and a tax on matches. At the end of May there seemed little hope of restoring the shattered Conservative-Liberal *bloc*.

THE FAILURE OF THE CHANCELLOR'S POLICY.—After the apparent rupture of the *bloc* at the close of May, Chancellor von Bülow seemed to recognize that the Conservatives had the upper hand, but nevertheless, he wished to placate the Liberals. The government's new tax proposals were published on June 14. The Chancellor warned the Conservatives against rejecting them, saying that the propertied classes ought to bear a large part of the new burdens. This was the opinion of the Federal Council as well as himself. He declared himself opposed to any taxes that would restrict or injure trade. But the power of the Conservative-Centre combination was manifest, not only in the Committee, but in the Reichstag. The latter passed the tax on securities proposed by the Conservatives and Centre, but a tax on coupons was afterwards substituted for it. On June 23, in spite of the government's warning, the Conservatives and Centre altered the proposed taxes. The Conservative-Centre proposal for an increment tax on town property was read for the second time in the Reichstag. At the end of



PRINCE BERNHARD VON BÜLOW
Retiring Chancellor

GERMANY



DR. THEOBALD VON BETHMANN-HOLLWEG
Chancellor of the German Empire

June the new government inheritance tax was rejected by a vote of 194 to 186 and the Committee's proposals for a stamp duty, increased duties on tea and coffee and the tax on real estate transfers were accepted. Another essential feature of the government's plan, the change of the financial relations between the empire and the states, was also rejected. The Finance Reform Committee, while accepting the government's penny stamp on checks, rejected its proposed tax on fire insurance and its penny stamp on bank credit receipts. Meanwhile Chancellor von Bülow had offered his resignation to the Kaiser. On July 2 the tobacco tax bill, levying an ad valorem tax of forty per cent. on all kinds of tobacco, was read the second time. This was accepted by the government. On July 6 the match tax bill was read the second time. The Conservatives and Centre had finally come to an agreement with the Federated States' government as to the policy to be pursued for raising the necessary amount. From the taxes on alcohol, tobacco, beer, matches, sparkling wines, tea and coffee, railway tickets, etc., the estimated returns were 400,000,000 marks; and from coupons, checks and timber duties, the sugar duty and the increase in the matricular contributions from 40 to 80 pf. per capita, 132,000,000 marks were expected. But the overthrow of von Bülow's policy was complete. On July 14 his resignation was accepted by the Kaiser. Dr. Theobald von Bethmann-Hollweg was immediately appointed his successor. In the public interview von Bülow condemned the Conservatives and declared that there was no difficulty between him and the Kaiser. On July 10 the new Chancellor announced in his capacity as Secretary of the Interior that the Federated governments, though not fully approving the new taxation scheme, would accept it. The finance bill, embodying the Conservative-Centre proposals, now passed its third reading in the Reichstag. On behalf of it a Conservative spokesman said that his party had made genuine sacrifices to meet the present difficulties and that the opposition to an inheritance tax arose from the feeling that it was a dangerous matter for a Reichstag chosen on the principle of equal suffrage to impose such a property tax, and that it might pave the way to expropriation. On July 13 the Reichstag was closed by Imperial decree. The downfall of von Bülow and the triumph of the Conservative-Centre policy marked the end of the era of *bloc* government. The new taxation laws were officially published on July 31.

POLITICAL PARTIES AND THE BUDGET. The following account of the relations of political parties and the downfall of the *bloc* is based on a critical review contributed by a German deputy in the Reichstag to the *Revue Politique*. The policy of the Conservative-Liberal *bloc* began after the elections of January, 1907. The foreign policy of Germany had caused distrust abroad and criticism at home, where its faults were set down to the personal rule of the Kaiser. The scandal of the so-called "camarilla," the belief that a group of corrupt courtiers secretly directed the personal régime and controlled the policy of the state, had irritated public opinion and inspired numerous articles and pamphlets toward the end of 1906 that were aimed against the Emperor. The object of the *bloc* policy was to allay this discontent by a recognition of the more democratic element

in the Reichstag. But the concessions to the Liberals were more apparent than real. It was only in appearance a constitutional government and the powers of Parliament were in no wise enlarged. The Clerical sentiment was as strong as ever. The Liberals acquired a taste of power, which they showed a willingness to make heavy sacrifices to retain. The interview in the *Daily Telegraph* in November, 1908, caused a storm of indignation against the system of personal rule and Imperial direction of the foreign policy. Chancellor von Bülow saw the necessity of making concessions. His defense of the Emperor in the course of the November agitation in the Reichstag was qualified and he drew from the Emperor a promise that he would thenceforth respect the limits that the constitution prescribed and work in harmony with the other agents of government. From that time on it was generally believed that the Emperor desired the Chancellor's downfall. Meanwhile the latter had offended the Conservatives by his course in the November affair, for they saw in it a first step toward limitation of Imperial power and toward parliamentary government, and also by his attitude toward the suffrage question in the Prussian Landtag, to which, in the speech from the throne, he had promised electoral reform. The Conservatives, moreover, were growing tired of the *bloc*, and feared that it would eventually result in too great concessions to the Liberals. They now began to rely for support on the Centre, who from the first had hated the *bloc* and desired the downfall of von Bülow, and who were naturally eager for an opportunity to replace the Conservative-Liberal by a Conservative-Centre combination. The contests occasioned by the financial proposals gave them their chance.

The Liberals were expected by some to take advantage of the situation to extort concessions from the government as the price of their support. The two chief features of their programme were the introduction of actual parliamentary government with the suppression of the personal régime, and the reform of the Prussian electoral system. These were popular aims, and the Liberals had the assurance that von Bülow was bound to carry through the financial measures only by the Conservative-Liberal majority and not by any other political combination. Many critics held that the best means of meeting the deficit was to reduce the enormous cost of armament, but neither the Conservatives nor the National Liberals were willing to consider that way out of the difficulty, the *bloc* having been elected on a nationalist platform. Though Chancellor von Bülow referred to the need of economies in military administration, he offered no definite plan of retrenchment. The Liberals seemed more concerned for the maintenance of the *bloc* than for the attainment of their political purposes. They showed themselves pliant and instead of demanding concessions, made them. They refused to insist on the Prussian electoral reform and they allowed the constitutional proposals offered after the November affair to be practically shelved in the committee. As to the financial programme of the government, they decided after some hesitation to support it, although it ran counter to their former principles. For they had hitherto contended that henceforth revenues should be raised chiefly by property taxes, especially

by a tax on capital and an Imperial income tax and that the taxation of articles of consumption, which bore heavily upon the people, should be correspondingly lightened. But the government plan would raise four-fifths of the 500,000,000 marks by indirect taxes (taxes on consumption) and only one-fifth by taxes on acquired wealth. The articles which the government proposed to tax were, with the exception of sparkling wines, articles of popular consumption, namely, alcohol, beer, tobacco and matches. The other taxes were of a kind to hamper industries, namely, the taxes on advertisements, gas, and electricity. The Liberals, however, justified their acceptance of these proposals, by pointing to the merits of the government's other proposal, that of the succession tax. They declared that this was indispensable and that they had made it the condition of their support. The succession tax was indeed a popular measure and not open to the objections that were offered to the others, and it was generally regarded by economists and by the more intelligent with favor. It was, however, violently opposed by the extreme Conservatives and by the Agrarians, who argued that it was a dangerous precedent for a Reichstag elected by popular majorities composed of persons without property, and might be the first step toward confiscation, that it violated the sentiment of family by the intrusion of the tax officers in the household after a decease to determine the amount of the succession, and that it was inequitable, as it bore more heavily on immovable property, especially land, than on capital and movables.

On this point, as well as in matters of general policy, the Conservative element in the Finance Reform Committee began to incline toward the Centre, apparently wishing to try the experiment of a combination which should supersede the *bloc*. The Conservatives rejected the succession tax and proposed a tax on acquired wealth to be levied by the states and then turned over to the Imperial government according to the needs. This was opposed by the Federated States as likely to plunge the state finances into confusion, and by the press as virtually shelving the succession tax. The government was suspected of disloyalty to the *bloc*, and to overcome this suspicion the Chancellor announced that he would not carry through the financial reforms with the aid of the Centre.

Contests between the Liberals and Conservatives in the Parliamentary Finance Commission soon developed over the details of the plan for indirect taxation. Though they were agreed on the general principle that 400,000,000 marks must be raised by these means they differed as to the proper articles for taxation, the Conservatives wishing to spare agriculture and throw the burden so far as possible on industry and trade, and the Liberals desiring the opposite. After months of discussion nothing was actually accomplished. The government's proposals were rejected or reduced to insignificance. The results were contradictory and confused, and the irritation between the parties in the *bloc* became intolerable. Such was the situation at the beginning of the Easter vacation. At this juncture the Centre came forward with a proposal in connection with the alcohol tax measure for a renewal of the exemption hitherto accorded to the farm distilleries. This won the Agrarian vote and was carried in the Finance

Commission by a large majority. From this time on the Centre pursued the policy of supporting the Agrarians with a view to substituting a Conservative-Centre combination for the Liberal-Conservative *bloc* and overthrowing the Chancellor. The Liberals and the Chancellor finally made efforts to prevent this, but too late. The Chancellor's compromise in the matter of the succession tax by imposing a tax on the portion of the estate that passed to each heir instead of the whole estate of the decedent was of no avail. The Liberals found themselves continually outvoted without the slightest regard to the interests of commerce and industry, which they championed. The president of the Commission, a National-Liberal, finally resigned (May 28), and all the members of the Left, including the Socialists, withdrew from the Commission. A large meeting of protest was held and a so-called "Hanseatic League" was formed to combat the aggressions of the Agrarians, but it was impossible to check the movement, and finally the succession tax was defeated in the Reichstag by a small majority in which the twenty Polish deputies, who joined the Clerical-Conservative alliance from hatred of von Billow as the author of Polish expropriation, cast the decisive votes. Thereupon von Billow offered his resignation. The new coalition pushed through its programme rapidly under the direction of von Bethmann-Hollweg, Minister of the Interior, who later succeeded to the Chancellorship. The tax programme as adopted was as follows:

Taxes on consumption:

	Marks
Alcohol	100,000,000
Beer	80,000,000
Tobacco	40,000,000
Matches	25,000,000
Lighting	45,000,000
Sparkling wines	40,000,000
Tea and coffee	45,000,000
Railway tickets	25,000,000

Taxes on acquired wealth (in place of the succession tax):

	Marks
Coupons	20,000,000
Checks	20,000,000
Timber duties	2,000,000
Matricular contributions	55,000,000
Sugar duty	35,000,000

The Reichstag was then adjourned and the new Chancellor von Bethmann-Hollweg assumed office, Herr von Sydow, former Minister of Finance, succeeding him as Minister of the Interior, and Herr Wermuth becoming Minister of Finance.

NAVAL DISCUSSION. The fear that Germany would accelerate her programme of naval construction occasioned great uneasiness in Great Britain, where every move was watched with anxiety and every rumor gravely discussed. (See GREAT BRITAIN, paragraphs on *History*.) In German official quarters the tendency of British writers to exaggerate German designs in the matter of naval development were frequently deprecated. A debate on naval estimates took place in the Reichstag on March 17. At that time Admiral von Tirpitz declared that

Germany would by 1912 have 13 *Dreadnoughts*, not 17 as British public men had stated. The government's policy of naval construction was supported by the Conservatives and National Liberals, while the Centre and Radicals demanded a reduced rate in the building programme. Reference was made on March 22 by the Imperial Foreign Secretary to the British government's wish for a mutual understanding as to the rate of naval construction, although, as he then declared, no proposal had been made. In general, he said, German naval construction was designed solely for German protection and involved no menace to any other nation. On March 23 the naval estimates were voted practically without debate, which marked a triumph of *bloc* politics contrasting with the failure to hold the *bloc* together on the government's finance reform programme. The army estimates were debated on March 22, and encountered as usual sharp criticism from the Socialists. On March 29 the Chancellor referred to the foreign policy of the government renewing the assurance of friendship with Great Britain and speaking of Germany's conciliatory attitude toward France and Morocco and her support, though without "excessive zeal," of Austria-Hungary in the Balkan crisis. The Chancellor said: "The Federal government entertains no thoughts of entering into competition with British sea powers by means of the construction of the German navy. . . . We desire to create our naval armaments solely for the protection of our coasts and our trade. . . . The programme of our naval construction lies open in absolute publicity. We have nothing to keep secret. . . . In the autumn of 1912, at the earliest, we shall have ready for service the 13 large new ships, including 3 armored cruisers, provided by law." He added that the attitude of the Federal government was based upon considerations of humanity and peace, in full accord with the peaceful tendency of the whole policy of Germany for many decades past. The thirteen large battleships which were expected to be ready in 1912 were to comprise ten *Dreadnoughts* and three *Invincibles*. In general it was evident that the government intended to adhere to a forward naval policy; but the rapidity of naval construction was repeatedly declared to be nothing like what the British press in its alarm was anticipating. Admiral von Tirpitz declared early in April that the time of construction had not been reduced, as was currently reported in Great Britain, to thirty or twenty-six months, but was still about thirty-six, and that forty months would be required in the Imperial yards, to say nothing of the time that would elapse during trial, but meanwhile rumors on the subject of Germany's designs continued to circulate freely in the press of both countries, and in England it was suspected that the rate of construction in Germany's shipyards was far more rapid than was publicly given out. The Navy League met at Kiel on June 5. Its policy was declared by the president and manager to be first of all an insistence on the strict fulfillment of the navy law and an increase, not only in ships, but in men.

OTHER QUESTIONS BEFORE THE REICHSTAG. An industrial amendment act was passed early in the year reducing the maximum number of hours for women per week from 65 to 58, and increasing by one hour the period within which

night work was forbidden. It prescribed 11 hours' rest after each day's work. The government's measure for the amendment and extension of workmen's insurance legislation provided for a considerable extension of sick insurance, and the inclusion of all classes not previously comprised, namely, agricultural laborers working for a shorter time than a week, stage and orchestra employees, teachers not employed by the state, etc. Closely connected with the subject of finance reform was the question of the increase of the salaries of public officials. It was generally admitted that such increase was necessary, but the government made it conditional upon the adoption of its finance reform programme. Great discontent was manifested among certain classes of the public servants, as illustrated by the sharply critical speeches at a Congress of Functionaries which met at Berlin about Easter. It will be remembered that the various constitutional questions raised after the much-discussed interview with the Kaiser in the *Daily Telegraph*, involving especially the principle of ministerial responsibility, were referred toward the close of 1908 to a Commission of the Reichstag. No positive result was reached by this Commission, but, as was expected, it simply served the purpose of shelving an acrimonious discussion. Little importance was attached to it in Parliament and especially by the Liberal Party. The proposals which had been referred to it were for the most part either rejected or reduced to very insignificant proportions. The Commission adjourned several times. Its undefined political status rendered the value of any decisions it might reach very uncertain.

THE NEW SESSION. The new session began on November 30. The speech from the throne referred to the friendly relations with other Powers and announced that a bill would be brought in to extend for two years the law concerning trade relations with Great Britain. This bill was subsequently introduced and passed its third reading on December 7. On December 9 the new Chancellor made his first official appearance in the Reichstag. On the following day he discussed briefly Germany's foreign relations. Baron von Schöner, the Foreign Secretary, spoke on the same subject, referring especially to the cordial relations with France in Morocco, as evidenced by the recent action of France in preferring the claims of German creditors to her own. He also declared that the Belgian government's reform plans as to the Congo represented a fulfillment of treaty rights. The Minister of Finance in announcing the estimates declared the prospects for the coming year were better.

PRUSSIA. According to Baron von Rheinbaben's estimate the Prussian deficit for 1909 was about \$39,000,000. He laid this before the lower house of the Landtag on January 12, which was called upon to sanction a loan. The Conservative element in the Prussian legislature was bitterly opposed to the Imperial financial policy and to the Chancellor's approaches to the Radical element in the Reichstag. They held the same view as to death duties that the Imperial Conservative party held, namely, that they were grossly unfair. On January 25, a debate occurred on the franchise, but the government refused to discuss the subject till certain statistical investigations, which were then going on, should be completed. On

January 26, a motion for substituting direct for indirect elections was rejected by a vote of 168 against 165, its opponents declaring that they were not against all change but merely against the programme of reform as outlined by the unrepresented classes. Demonstrations on behalf of franchise reform were made by the Socialists soon afterwards, and collisions with the police occurred at Cologne, Breslau, Kiel and Hanover. At the last-named place a score of persons were wounded. Early in February the Socialists incited some demonstrations on the part of the unemployed which led to disturbances on February 9, in the course of which the crowds pulled down the flags from the omnibuses and buildings and several persons were arrested. In Prussian as well as in Imperial politics the two chief practical questions during the first part of the year were the need of increased permanent receipts and of increased salaries for officials. The financial measures in Prussia included an increased tax on incomes on the principle of slow progression from incomes of 1200 marks. As to salaries, it was necessary for Prussia to await the action of the Imperial government since the salaries of Prussian officials had to be on the same scale as those of Imperial officials.

The government's proceedings against Dr. Lothar Schücking, mayor of Hasum, begun in 1908, terminated successfully. The case aroused much sympathy with Dr. Schücking among the Liberals as a victim of the government's reactionary policy. Disciplinary proceedings were instituted against him for attacking in a book and in published articles certain alleged abuses incident to the influence in the state of the military and noble caste, the bureaucrats and the wealthy student bodies. Nothing was urged against him either as Mayor or as a private person and the success of the government was regarded by the Liberal and Independent press and even by some Conservatives as a blow at the freedom of political criticism. He was disciplined, they said, for a simple declaration of opinions displeasing to the authorities.

OTHER EVENTS. The new postal arrangement between Germany and the United States for the rate of two cents an ounce on letters went into effect January 1. The fiftieth birthday of the Kaiser was celebrated on January 27. On February 9, the King and Queen of Great Britain visited Berlin and were received with the utmost cordiality. The visit was intended to promote good feelings between the two nations and was believed to have contributed to this end. Toward the end of the month Germany and the United States agreed on a treaty protecting the patent rights of their citizens. The Congress on the treatment of juvenile offenders was opened at Charlottenburg on March 15. The number of juvenile courts in Prussia was at that time 26. It was reported that the number of juvenile offenders had increased three times as fast as that of other offenders. The Emperor and Empress visited Italy in May, meeting the King and Queen of Italy at Brindisi on May 12. The Berne Copyright Convention was accepted by Germany, which was the first nation to sign the agreement. In May the Kaiser visited Vienna and this was the occasion for mutual congratulations on the Triple Alliance and much praise of what Germany had recently done to maintain the European peace.

The twentieth session of the International Congress of Miners was held at Berlin from May 31 to June 4. It adopted resolutions condemning piece work, and advocating the minimum wage and annual vacations in all countries, declaring that the production of coal ought not to exceed the demand except for a one per cent. reserve, urging the nationalization of mines (although the German and Austrian delegates said that the men were no better treated in the state-owned mines); demanding immediate legislation for better precautions for safety in the mines and for the election by the workmen of inspectors from among the employed, to be paid by the state; and urging that when a general strike was declared in one country the miners' organization in neighboring countries should limit production by ceasing work for a time. In the course of a speech made at the Congress it was said that in fifteen years the trade unions of Germany had increased from 300,000 to 1,800,000. Early in June delegates from the British churches, accepting the invitation of the joint commission of German churches, began a series of visits to German cities where they received a cordial welcome. Much was said about the visit as tending to promote friendly relations between the two nations. The University of Leipzig celebrated its five hundredth anniversary on July 30. The Eucharistic Congress was opened at Cologne on August 4. The International Maritime Conference Committee met at Bremen at the end of September. The naval manœuvres under the Admiral, Prince Henry, were appointed to take place early in September. The Emperor and Empress visited the Netherlands early in August. An international visit which caused much comment in the press was that of the Imperial Chancellor to Vienna in September. He held an interview with the Emperor in the course of which the importance of the Austro-German alliance was emphasized and the complete accord between the Chancellors of the two countries. The Eucharistic Conference at Cologne ended on August 8. For an account of the Socialist Conference, see SOCIALISM. On January 22, the Foreign Secretary declared that Germany regarded the Belgian annexation of the Congo as an accomplished fact and he announced his belief that under the new régime the evils complained of would be removed. The sentence in the famous Harden Case was rendered in April. A fine of \$150 was imposed upon him for libeling Count von Moltke. Representatives of the British Labor Party visited Germany in June and were received by one of the vice-presidents of the Reichstag on June 6. In the autumn the revised figures for the deficit for the financial year 1908 showed considerable increase beyond the original estimates, which increase would have to be met out of the proposed loan. One effect of the new tobacco duty was the laying off of a large number of workmen at Hamburg and other centres, which led to a petition from the workmen's association for the distribution of the special fund provided for in the Budget to relieve unemployment resulting from this cause. Another effect of the new duties was the increase of coffee and tobacco smuggling from the Netherlands, necessitating the establishment of a large number of new custom houses. See WOMEN IN INDUSTRY.

SOCIALIST SUCCESSES. The feeling of the people toward the new taxes was shown by Socialist gains. The Socialists won in three

supplementary elections to the Reichstag (Coburg, Kaiserslautern, and Halle), and scored substantial gains in other districts. But their success in the October elections to the Diets of Saxony and Baden was especially noteworthy. In the former kingdom a reactionary system has prevailed, resulting in their virtual exclusion, but in 1909 a measure of electoral reform based on plural voting went into effect. It was thought that under the system of plural voting, it would still be possible to exclude the Socialists. But in the first elections held under it in October the reactionary party was overwhelmed, the conservative party was reduced to a powerless minority, and the Socialists acquired nearly one-third of the seats. In Baden the Socialists secured on the first ballot a larger number of seats than they had ever had before. On the second ballot the Liberals, National Liberals, Democrats and Socialists united and secured nearly two-thirds of the seats. See **ARBITRATION, INTERNATIONAL; FINANCIAL REVIEW, SOCIALISM, TARIFF AND TRADE UNIONS.**

GERONIMO. An Indian chief of the Chiricahua Apache tribe, died February 17, 1909. There is no accurate record of the date of his birth, but his career as a "hostile" Indian began in the early '60's. He was the son of Magnus Colorado, chief of the Warm Spring Chiricahuas, a terror to the settlers in Arizona and New Mexico. On the death of Cochise, the war chief of the Chiricahua Apaches in 1875, Geronimo was chosen to succeed him. The career of Cochise for plunder and rapine was exceeded only by that of Geronimo. In the next ten years the latter killed men, women and children in numbers that can never be known. His cruelty to those whom he captured is almost beyond belief. In 1885 General Crook, who had been pursuing the marauding Apaches for many months, had succeeded in confining all except Geronimo's band to the reservations. He finally succeeded in cornering the latter, but, owing to the carelessness of those guarding the trails, the wily Indian escaped and fled into Mexico. For this General Crook was removed from command, and General Miles took up the chase. In August, 1886, Captain (afterwards General) H. W. Lawton succeeded in penning Geronimo and his band at the junction of the San Bernardino and Bavispe rivers on the Mexican border. After some parleying Geronimo surrendered unconditionally. He was sent to Fort Pickens, Fla., but the climate proved unhealthful for him, and he was taken to Fort Sill, Okla., where he passed the remainder of his days. Geronimo was one of the cruelest and subtlest Indians with whom the government ever had to deal. Although he professed several years before he died to have been "converted," and had joined the Dutch Reformed Church, he was constantly on the lookout to slip away and stir up trouble. He remained "unreconstructed" to the last.

GIBRALTAR. A British Crown colony and naval fortress on the southern coast of Spain. The port is free and is the mart of a considerable trade between Great Britain and northern Africa; it is also an important coaling station. Its area is $1\frac{1}{4}$ square miles; estimated civil population, mostly descendants of Genoese settlers, (1907) 18,644; (1908), 18,316. Military (1907) 5007. There are government and private schools; the inhabitants are for the most part Roman Catholics. There are

practically no industries. There are four miles of telegraph line (3 military), and external cable communications. The revenue and expenditures in 1907 were £83,804 and £71,670 respectively. The expenditure (military) by the British government amounted (1907) to £325,152. The colony is administered by a military governor—in 1909, General Sir F. W. E. Forester-Walker.

GIFTS AND BEQUESTS. The amounts given for gifts and bequests in 1909 greatly exceeded the total of similar gifts in 1908 and very nearly approached the great sum of over \$150,000,000 given in 1907. According to the records compiled by the *Chicago Tribune*, from which the list below is taken, the amount donated for all purposes was \$147,641,253 as compared with \$90,032,090 in 1908. Of the gifts and bequests in 1909 \$70,636,387 represents gifts and \$77,004,866 bequests. The whole amount is distributed as follows: Charity, \$67,466,421; educational institutions, \$46,122,241; religious institutions, \$22,443,885; art museums, galleries and public improvements, \$8,616,410; and libraries, \$3,012,293. The largest individual giver in 1909 was John D. Rockefeller. His total gifts for the year amounted to \$12,130,500. Of this sum, \$10,000,000 represented an additional gift to the General Board of Education (see **UNIVERSITIES AND COLLEGES**). He gave \$1,000,000 to the University of Chicago, and \$1,000,000 for the investigation of hookworm disease (q. v.). Mr. Andrew Carnegie in 1909 took second place as a dispenser of gifts. They aggregated \$4,652,500. The largest gift made by Mr. Carnegie was one of \$2,000,000 to the Pittsburgh School of Applied Science. He gave \$1,000,000 for the founding of the French Hero Fund and several of his other gifts equaled or exceeded \$100,000. Mrs. Russell Sage gave away during the year a total of \$1,201,761. The largest of these was the conditional gift to the Methodist Church for Bible extension. For this purpose she gave \$500,000. She gave to Princeton University \$250,000 and to the Metropolitan Museum of Art \$225,000. Among the donors to colleges, Dr. D. K. Pearsons of Chicago is notable. His gifts aggregated \$541,000. He gave considerable sums also to various other institutions. The total benefactions of these four persons during a number of years is as follows: Mr. Carnegie, \$162,000,000; Mr. Rockefeller, \$131,760,062; Mrs. Sage, about \$26,000,000; Dr. Pearsons, about \$3,000,000. Among the most generous donations to colleges and other institutions and causes in recent years were those left by Mr. John Stewart Kennedy (q. v.). These gifts aggregated more than \$12,000,000.

The following list includes gifts which amount in value to \$5000 or over.

Adelbert College, gift by various donors, \$375,000.

Adids, Thomas E., New Haven, Conn., will to charity. \$350,000.

African Diamond Jubilee, \$280,000.

Albany (Oregon) College, gift by various donors, \$25,000.

Alma College, gift by Andrew Carnegie, \$25,000.

Alms, Mrs. F. F., Cincinnati, O., gift to Lincoln Home Association, \$100,000.

American Academy, Rome, gift by Mrs. Alexander Heyland. \$500,000; conditional bequest by Charles F. McKim, \$1,000,000; gift by John D. Rockefeller, \$100,000.

American Girls School, Constantinople, gift by Helen Gould, \$100,000.
 American Library Association, gift by Andrew Carnegie, \$100,000.
 American Museum of Natural History, gift by Phoebe A. Thomas, \$5000.
 American University, gift by unnamed donor, \$11,000.
 Ampt, W. M., Cincinnati, Ohio, gift for popular music, \$150,000.
 Anderson, Elizabeth M., New York, gift to Children's Aid Society, \$300,000.
 Archbold, J. D., New York, gift to Syracuse University, \$375,000.
 Armour Institute, gift by J. Ogden Armour, \$1,323,500.
 Arnold, Gabelle, Pittsburg, Pa., gift to church, \$170,000; gift to charity, \$30,000.
 Art Institute, Chicago, Ill., gift by various donors, \$100,000.
 Art Institute, N. Y., gift by A. A. Healy, \$20,000.
 Atwater, Grace E., New York, gift to charity, \$10,000.
 Atwood, I. S., N. Y., gift to Hebron Academy, \$10,000.
 Augustana College, gift by Donckmann Estate, \$100,000; gift of library by P. C. A. Denkmann and family, \$100,000.
 Ayer, Frederick F., New York, gift to charity, \$50,000.
 Ballarin, Bartolo, Los Angeles, Cal., gift to charity, \$25,000.
 Baptist Church, missions, \$3,000,000.
 Barstow, Mr. and Mrs. W. A., Orange, N. J., gift to charity, \$200,000.
 Bartold, George, Monterey, Cal., will to city, \$10,000.
 Battle Creek Sanitarium, gift by Charles E. Wood, \$1,000,000.
 Beach, Helen A., Oshkosh, Wis., gift to Manual Training School, \$5000.
 Beekman, W. H., Cincinnati, O., gift to charity, \$5000.
 Belden, Clara, Kenosha, Wis., gift to church, \$15,000.
 Belmont, August, New York, gift to Railway Employees' Clubhouse, \$10,000.
 Bennett, C. U. Coldwater, Mich., gift to library, \$5000.
 Berea College, gift by Francis Clarke, \$5000; gift by D. K. Pearsons, Chicago, \$25,000.
 Berwynd, John E., New York, gift to charity, \$100,000.
 Bethany College, gift by George T. Oliver, \$25,000.
 Bethel, S. H., Dixon, Ill., willed to charity, \$100,000.
 Blackburn College, gift by Harris Estate, \$20,000; by Andrew Carnegie, \$10,000.
 Blaine, Anita McCormick, Chicago, Ill., gift to public school playground, \$38,610.
 Blake, Susan P., Brookline, Mass., gift to charity, \$18,000.
 Blodgett, Miss E. B., Exeter, N. H., gift to library, \$10,000.
 Boehne, J. W., Evansville, Ind., gift to charity, \$5000.
 Boston, Mass., Art Museum, gift by various donors, \$150,000.
 Bowdoin College, gift by Joseph E. Merrill, Newton, Mass., \$300,000; gift by Mrs. A. S. Flagg, \$25,000.
 Boya, S. S., Alexandria, La., gift to library, \$10,000.

Boyle, Catharine, Philadelphia, gift to charity, \$11,000; gift to church, \$11,000.
 Boys' Club, Springfield, Mass., gift by various donors, \$100,000.
 Bookstaver, H. W., gift to Rutgers College, \$17,500.
 Bray, W. M., Oshkosh, Wis., gift to city for park, \$15,000.
 Brigham Hospital, gift by Elizabeth Brigham, \$2,500,000.
 Brown, George W., St. Louis, Mo., gift to church, \$15,000.
 Brown, John G., Providence, R. I., will to charity, \$150,000.
 Brown University, gifts by Francis A. Gaskill, Worcester, \$10,000; Helen W. Miller, \$20,000; John D. Rockefeller, Jr., \$25,000; Mrs. W. H. Miller, Providence, R. I., \$20,000.
 Browne, Catharine, Schwenkville, Pa., gift to church, \$5000.
 Bryant, Mary M., Philadelphia, Pa., gift to charity, \$5000.
 Bryn Mawr College, gift by Cynthia M. Wasson, \$7000.
 Buechtel, Augusta, Germantown, Pa., gift to charity, \$10,500.
 Burgess, Annie P., New York, gift to St. Luke's Hospital, \$5000; for college scholarships, \$10,000.
 Burke, John M., New York, gift to found convalescent home, \$4,000,000.
 Burnett, J. A., McAlester, Okla., gift to church, \$1,000,000.
 Busch, Adolphus, St. Louis, Mo., gifts to Harvard University, \$50,000; to Italian Earthquake Fund, \$25,000; Harvard University, \$200,000; Germanic Museum, \$50,000.
 Butler, Virginia, Stockbridge, Mass., gift to church, \$30,000.
 Butterick, Catharine, Lowell, Mass., gift to charity, \$48,500.
 Calhoun Colored School, gift by Caroline Phelps Stokes, \$10,000.
 Camp, Caleb J., Winsted, Conn., gift to charity, \$25,000.
 Canandaigua, N. Y., gift of post-office site by Mrs. F. F. Thompson, \$20,000.
 Carleton College, gift by Mr. and Mrs. F. B. Northfield, \$35,000.
 Carleton, Murray, St. Louis, Mo., gift to church, \$5000.
 Carnegie, Andrew, gifts to charity, \$5000; to University of Tennessee, \$40,000; American Library Association, \$100,000; 450 acres to Pennsylvania Institute for Civic Federation, \$100,000; Denver University, \$50,000; Christian College, \$25,000; to library, Tralee, Ireland, \$15,000; land to Pennsylvania for hospital; McGill University, \$100,000; to Alma College, \$25,000; Italian Earthquake Fund, \$10,000; Koch Institute, Berlin, \$125,000; Blackburn College, \$10,000; branch libraries to Indianapolis, Ind., \$120,000; New York betterment, \$20,000; School of Applied Science, Pittsburg, Pa., \$2,000,000; Wilkesbarre University, \$175,000; Hamilton College, \$200,000; University of Virginia, \$500,000; Ewing College, \$10,000; French Hero Fund, \$1,000,000; library to El Centre, Cal., \$10,000; Manassas School for Negroes, \$15,000; Cincinnati public library, \$100,000; library to Escondido, Cal., \$7500; Central American Peace Conference, \$25,000; Macalester College, \$20,000.
 Carpenter, H. W., gift to Columbia University, \$100,000.

Carpenter, W. S., gift of schoolhouse to Nat-
chez, Miss., \$80,000.

Carroll College, gift by J. A. Whitewater,
\$7000.

Carthage College, gift by various donors, \$200,-
000.

Cate, Della E., Marlboro, Mass., gift to Straf-
ford, N. H., Academy, \$200,000.

Catholic Education, gift by James J. Hill,
\$10,000.

Central American Peace Conference, gift by
Andrew Carnegie, \$25,000.

Chaney, Cassius, Wellsville, Ohio, gift to
charity, \$10,000.

Chappaqua, N. Y., gift to sanitarium by un-
named donor, \$300,000.

Chautauqua (for colored race), gift by various
donors, \$20,000.

Cherry mine relief fund, gift by various
donors, Chicago, Ill., \$125,000.

Chicago, Ill., gift by various donors for tuber-
culosis sanitarium in New Mexico, \$50,000.

Chicago Hebrew Institute, gift by Julius
Rosenwald, \$25,000.

Chicago Theological Seminary, gift by D. K.
Pearsons, \$125,000.

Children's Aid Society, gift by Elizabeth M.
Anderson, New York, \$300,000; gift by unnamed
donor, \$424,000.

Christian College, gift by R. H. Stockton, \$25,-
000; Andrew Carnegie, \$25,000; gift by un-
named donors, \$50,000.

Cincinnati, Ohio, gift to charity by various
donors, \$20,000.

Cincinnati Hebrew Union College, gift by
Julius Rosenwald, \$50,000.

Clapp, Edwin, Weymouth, Mass., gift to
Memorial Association, \$70,000.

Clapp, Lucius, Randolph, Mass., will to
charity, \$5000.

Clark, Benjamin C., Cohasset, Mass., gift to
charity, \$10,000.

Clark, Della O., White Plains, N. Y., gift to
charity, \$5000.

Clark, John E., Paterson, N. J., gift to charity,
\$6000.

Clarke, Francis, Philadelphia, Pa., gift to
Tuskegee Institute, \$5000; Berea College, \$5000;
charity, \$5000.

Clough, Henry, Pittsburg, Pa., gift to Shaker
Community, \$50,000.

Cochran, Eva S., Yonkers, N. Y., gift to fac-
tory workmen, \$350,000.

Colburn, L. L., Chicago, Ill., gift to Columbia
University, \$5000.

Colby Academy, gift by Sherman L. Whipple,
\$130,000; Susan C. Colgate, \$60,000.

Colgate, Susan C., Boston, Mass., gift to Colby
Academy, \$60,000.

Colgate University, gift by Elizabeth A. Hill,
\$25,000.

College of the City of New York, gift by Henry
S. Treman, \$5000.

Colorado Springs, Colo., gift of park by Per-
kins heirs, \$200,000.

Colt, Samuel P., gift of high school building
to Bristol, R. I., \$200,000.

Colton, F. B., Brookline, Mass., gift for col-
lege for girls, \$1,000,000.

Columbia University, gift by H. W. Carpenter,
\$100,000; unnamed donor, \$100,000; various
donors, \$7500; Mrs. Marcella Jenkins, \$100,000;
L. L. Colburn, \$5000.

Cortland, N. Y. (Hospital), gift by Charles
F. Wickwise, \$70,000.

Cowper, Mrs. P. J., St. Louis, Mo., gift to
Drury College, \$25,000; gift to church, \$20,400;
gift to charity, \$5000.

Crittenton, Charles N., New York, gift to
Crittenton Mission, \$2,000,000.

Crocker, George, New York, gift for investi-
gating cancer, \$1,500,000.

Crosby, Stephen, Boston, Mass., gift to Dart-
mouth College, \$50,000; gift to charity, \$8200.

Cruze, Thomas, Helena, Mont., gift to church,
\$28,000.

Cummings, Emma D., gift to charity, \$75,-
000; gift to Dartmouth College, \$25,000.

Cutter, Bloodgood, New York, gift to Man-
hattan Bible Society, \$655,000.

Cuyler, Cornelius C., New York, will to
Princeton University, \$100,000.

Daggett, Alonzo B., Syracuse, N. Y., will to
charity, \$101,000.

Daniels, Mr. and Mrs. J. W., Minneapolis,
Minn., gift to Yale University, \$50,000.

Dartmouth College, gift by Stephen Crosby,
\$50,000; gift by Emma Cummings, \$25,000.

Davis, Henry G., Wheeling, W. Va., gift to
Oddfellows' Home, \$150,000.

Day, Livia H., New Haven, Conn., gift to Yale
Divinity School, \$15,000.

Dayton, Julia G., Philadelphia, Pa., gift to
University of Pennsylvania, \$7000; gift to
charity, \$20,000.

Deaconess Endowment Fund, gift by N. W.
Harris, Chicago, \$100,000.

Decatur College, gift by James Milliken, \$400,-
000.

Deering, Wm., Chicago, Ill., gift to Wesley
Hospital, \$55,000.

Denkman, P. C. A. and family, Rock Island,
Ill., gift of library to Augustana College, \$100,-
000.

Denver, Col. (Hospital), gift by various
donors, \$85,000.

Derby, H. C., Watertown, Mass., gift to
schools, \$40,000.

Des Moines, Ia. (unnamed donor), gift to
charity, \$40,000.

Dixon, Arthur, Chicago, Ill., gift to charity,
\$7000.

Dodge, Cleveland, New York, gift to Prince-
ton University, \$100,000.

Dodge, Mary H., New York, gift to Shakes-
peare Memorial Theatre, \$350,000.

Dominick, George F., New York, gift to
church, \$39,000.

Donaldson, Mrs., Baltimore, Md., gift to Graf-
ton Hall, \$50,000.

Donckmann Estate, gift to Augustana College,
\$100,000.

Dow, Mary M., Laconia, N. H., gift to church,
\$6300.

Dows, Margaret, N. Y., gift to charity, \$45,-
000.

Drafts, Mrs. K. E., Lexington, S. C., gift to
Mount Pleasant Seminary, \$5000.

Draper, C. H., Brookline, Mass., gift to
charity, \$10,000; church, \$10,000, library,
\$5000.

Drexel, Mrs. Franklin, Philadelphia, Pa., gift
to church, \$25,000.

Duke family, Durham, N. C., gift to Trinity
College, \$5,250,000.

Dunphy, Patrick, Pueblo, Colo., gift to church,
\$100,000.

Durand, Henry C., estate of, Lake Forest, Ill.,
gift to church, \$10,000; gift to charity, \$40,-
000; gift to Lake Forest University, \$10,000.

Earlham College, gift by M. M. White, \$10,000.
 Eastman, George, gift to hospital, Rochester, N. Y., \$400,000.
 Eberhard, E. G., Mishawaka, Ind., gift to Y. M. C. A., \$7500.
 Eddy, Mary Baker G., gift to New York Museum of Sanitation and Safety, \$5000.
 Ehrmann, Ernest, New York, gift to charity, \$25,000.
 Ellis, Charles E., Philadelphia, Pa., gift to Home for Fatherless Girls, \$2,500,000; gift to schools, \$20,000.
 Ellmaker, Cecile H., Lancaster, Pa., gift to charity, \$5000.
 Ely, S. Mills, Binghamton, N. Y., gift to Haverford Normal School, \$15,000; gift to Auburn Theological Seminary, \$5000.
 Emerson, Ellen T., Concord, Mass., gift to charity, \$11,000.
 Emery, George D., Boston, Mass., gift to Home for Friendless Women, \$10,000.
 Emery, Mrs. T. J., Cincinnati, O., gift to Hobart University, \$25,000.
 Evanston, Ill. (unnamed donor), gift to hospital, \$45,000; gift of park land by J. C. Patten, C. G. Davies and W. A. Vawter, \$41,000.
 Evanston Hospital, gift by James A. Patten, \$40,000.
 Ewing College, gift by Andrew Carnegie, \$10,000.
 Fairhaven, Mass., School of, gift by Henry H. Rogers, \$100,000.
 Falk, Emma, New York, gift to charity, \$10,000.
 Farley, Annie, Philadelphia, Pa., gift to charity, \$9000.
 Farnam, C. H., New Haven, Conn., gift to Yale University, \$500,000.
 Fay, Bridget, Chelsea, Mass., gift to charity, \$40,000.
 Feiler, Stella J., Harris County, Texas, gift to charity, \$500,000.
 Fellowes, Richard H., New Haven, Conn., gift to Yale University, \$50,000.
 Ferguson, William J., Philadelphia, Pa., gift to church, \$50,000.
 Ferson, Caroline N., Columbus, O., gift to church, \$70,000.
 Fetter, George, Philadelphia, Pa., gift to charity, \$50,000.
 Fifth Avenue Presbyterian Church, N. Y., gift by unnamed donor, \$25,000; gift by various donors, \$40,000.
 Filer, Mrs. D. W., Manistee, Mich., gift to charity, \$150,000.
 Fitz, John, Bethlehem, Pa., gift to Lehigh University, \$50,000.
 Flagg, Mrs. A. S., Springfield, Mass., gift to Bowdoin College, \$25,000; gift to charity, \$20,000.
 Flower, A. R., Watertown, N. Y., gift to charity, \$12,750.
 Ford, Henry, Detroit, Mich., gift for Boys Home, \$10,000.
 Foreign Missions, gift by various New York donors, \$63,749.
 Foss, Mrs. L. W., Seattle, Wash., gift to charity, \$40,000.
 Fowler, Helen B., Newburyport, Mass., gift to church, \$21,000; gift to charity, \$25,000; gift to the city, \$10,000.
 Fowler, Isabel M., Jamaica Plains, Mass., gift to charity, \$15,000.
 Fox, Reuben L., Oneonta, N. Y., gift to charity, \$30,000.

Freeman, W. McLean, Philadelphia, Pa., gift to church, \$100,000.
 French Hero Fund, gift by Andrew Carnegie, \$1,000,000.
 Freund, Max, N. Y., gift to charity, \$7000.
 Frick, Henry C., gift of land for park to Pittsburg, \$2,000,000; gift to Y. M. C. A., \$10,000.
 Friedman, Julius, San Francisco, Cal., gift to charity, \$170,000.
 Friends' College, gift by James J. Hill, \$5000.
 Fritz, J. H., Carlisle, Pa., gift to Gettysburg Theological Seminary, \$50,000; gift to charity, \$13,000.
 Gamble, Robert, Philadelphia, Pa., gift to charity, \$9000.
 Garland, James G., Saco, Me., gift to church, \$8000.
 Garvie, James N., Metuchen, N. J., gift to charity, \$102,000.
 Gary, E. H., N. Y., gift to Y. M. C. A., Gary, Ind., \$100,000.
 Gaskill, Francis A., Worcester, Mass., gift to charity, 5000; willed to Worcester Academy, \$5000; willed to Brown University, \$10,000.
 Gates, Joel H., Burlington, Vt., gift to Home for Aged Women, \$100,000; gift to church, \$5000.
 Gates, John W., Galveston, Texas, gift to erect hospital, \$500,000; Memorial College, Port Arthur, Texas, \$120,000.
 Georgia School of Technology, gift by Mrs. Joseph B. Whitehead, \$5000.
 German Methodist College, Charles City, Iowa, gift by unnamed donor, \$25,000; gift by various donors, \$50,000.
 German Wallace College, gift by various donors, \$32,000.
 Germanic Museum, gift by Adolf Busch, \$50,000.
 Gettysburg Theological Seminary, gift by J. H. Fritz, \$50,000.
 Ginn, Edward, Boston, Mass., by will for international peace, \$1,000,000; by general gift for international peace, \$50,000.
 Godfrey, Rufus B., Bennington, Vt., gift to charity, \$52,000.
 Good, Minerva C., South Bend, Ind., gift to charities, \$200,000.
 Gould, Helen, New York, gift to American Girls School, Constantinople, \$100,000.
 Grafton Hall, gift by Mrs. Donaldson, Baltimore, Md., \$50,000.
 Grand Prairie Seminary, gift by W. A. Rankin, \$50,000.
 Graves, J. S., Los Angeles, Cal., gift to University of California, \$20,000.
 Graves, Margaret J. P., New York, gift to charity, \$200,000.
 Gray, Jane S., Cambridge, Mass., will to charity, \$5000.
 Greater Buffalo University, gift by various donors, \$45,000.
 Gregory, Charles R., St. Louis, Mo., gift to charity, \$600,000.
 Guggenheim, Simon, Denver, Colo., gift to State Normal School, \$50,000.
 Haase, John H., St. Louis, Mo., gift to Reinischer Frohsun Society, \$100,000.
 Hamilton College, gift by Andrew Carnegie, \$200,000.
 Hampton Institute, gift by Caroline Phelps Stokes, \$10,000; gift by Mary Lewis, \$120,000; gift by Mary Lewis, \$50,000; gift by Mrs. Samuel Mather, \$5000.

Harms, Henry, St. Louis, Mo., gift to charity, \$7500.

Harper Memorial Library, gift by Elizabeth A. Hill, \$59,000; gift by unnamed donor, \$40,000.

Harris Estate, gift to Blackburn College, \$20,000.

Harris, N. W., Chicago, Ill., gift to Northwestern University, \$180,000; gift to Deaconess Endowment Fund, \$100,000.

Harris, Theodore, Louisville, Ky., will to church, \$1,000,000.

Hart, Evaline J., New Haven, Conn., will to charity, \$16,200.

Harvard University, gift by J. U. Smith, \$10,000; gift by various donors, \$150,000; gift by Ira D. Van Duzer, \$5000; gift by F. A. Thompson, \$50,000; gift by Edith F. Perkins, \$30,000; gift by Adolphus Busch, \$250,000; gift by Annie Runwill, \$15,000.

Haugan, Helge A., Chicago, Ill., gift to charity, \$5000.

Havemeyer, Mrs. H. O., New York, gift to schools, \$27,000.

Hazard, Rowland (heirs of), gift of school to Providence, R. I., \$40,000.

Healy, A. A., New York, gift to Art Institute, \$20,000.

Hebrew Institute, Chicago, gift by Julius Rosenwald, \$20,000.

Hebrew Training School, New York, gift by various donors, \$9000; gift by Jacob Schiff, \$50,000.

Hebron Academy, gift by I. S. Atwood, \$10,000.

Hedding College, gift by various donors, \$50,000.

Hellman, J. W., San Francisco, Cal., gift to Mount Zion Hospital, \$100,000.

Hemingway, Susan F., Terra Haute, Ind., gift to Rose Polytechnic Institute, \$500,000.

Henderson, Ettie, New York, gift to charity, \$5000.

Hendrix College, gift by Emeline D. Triggs, \$10,000.

Henry, Harry S., Philadelphia, Pa., gift to charity, \$1,500,000.

Henry, John C., New York, gift to charity, \$35,000.

Hensy, William P., Philadelphia, Pa., gift to Haverford College, \$10,000; gift to Swarthmore College, \$10,000; gift to Bryn Mawr College, \$10,000; gift to education, \$180,000.

Highland Park Mills, Charlotte, N. C., gift to church, \$25,000.

Hill, Arthur, Saginaw, Mich., gift to University of Michigan, \$225,000; gift for Manual Training School, \$200,000; gift for charity, \$70,000.

Hill, Elizabeth A., Chicago, will to Colgate University, \$25,000; will to Harper Memorial Library, \$59,000.

Hill, Mr. and Mrs. F. B., Northfield, gift to Carleton College, \$35,000.

Hill, James J., St. Paul, Minn., gift to Catholic Education, \$10,000; gift to Huron College, \$50,000; gift to Morningside College, \$10,000; gift to Friends' College, \$5000.

Hinsheimer, L. A., New York, will to charity, \$1,000,000.

Hitchcock, W. G., Manhattan, N. Y., gift to charity, \$14,000; gift to church, \$27,000.

Hobart College, gift by Mrs. T. J. Emery, \$25,000; gift by Mrs. C. D. Vail, \$5000; gift by Hiram Sibley, \$5000.

Hollingsworth, Maria A., Dedham, Mass., will to charity, \$12,500; will to Tuskegee Institute, \$5000; will to church, \$30,500.

Home for Aged Women (Burlington, Vt.), gift by Joel H. Gates, \$100,000.

Home for Fatherless Girls, gift by Charles E. Ellis, Philadelphia, \$2,500,000.

Home for Friendless Women, gift by George D. Emery, Boston, Mass., \$10,000.

Home of the Friendless, gift by Mrs. Elisha Whitehead, \$5000.

Hood, Esther A., Philadelphia, Pa., gift to University of Pennsylvania, \$100,000.

Hopkins, Robert E., Tarrytown, N. Y., gift to charity, \$30,000.

Horn, Michael, New York, gift to charity, \$40,000.

Horwich, Mass., gift by Calvin Paige, \$135,000.

Houston, Leon H., Springfield, Ohio, gift to library, \$20,000; gift to charity, \$15,000.

Houston, Samuel, Columbus, Ohio, gift to church, \$5500.

Howe, Elmer P., Boston, Mass., gift to Worcester Polytechnic Institute, \$15,000.

Hubbard, Mrs. E. K., Middletown, Conn., gift to church, \$8000.

Hubbard, Gertrude W., Washington, D. C., gift to charity, \$50,000.

Hubbard, Mary A., Chicago, will to church, \$23,000; to charity, \$20,000.

Huntington, A. M., New York, gift to church, \$50,000.

Huntington, Mrs. C. P., New York, gift to American Geographical Society, \$750,000.

Huntington, W. R., New York, will to charity, \$42,000.

Huron College, gift by D. K. Pearsons, \$15,000; conditional gift by James J. Hill, \$50,000.

Hutchins, Lizzie F., Lowell, Mass., gift to charity, \$5000.

Heyland, Mrs. Alexander, New York, gift to American Academy, Rome, \$500,000.

Indianapolis, Ind., gift of branch libraries by Andrew Carnegie, \$120,000.

Institute for Civic Federation, gift by Andrew Carnegie, \$100,000.

Institute for Deaf Mutes, gift by various donors, New York, \$30,200.

Institute of Technology, gift by W. R. Moore, Memphis, Tenn., \$1,000,000.

Iowa College, gifts by various donors, Grinnell, Iowa, \$10,000.

Italian Earthquake Fund, gift by John D. Rockefeller, \$10,000; by Mrs. Russell Sage, \$5000; by Adolphus Busch, \$25,000; by United States Steel Co., \$25,000; by Standard Oil Co., \$10,000; by J. Pierpont Morgan, \$10,000; by Andrew Carnegie, \$10,000; by United States Congress, \$800,000. Total donations in United States, \$3,000,000.

Ivale, Sigvald, Eau Claire, Wis., gift to charity, \$30,000.

Jenkins, Helen H., Morristown, N. J., gift to charity, \$30,000.

Jenkins, Mrs. Marcella, New York, gift to Columbia University, \$100,000.

Jesup, Mrs. M. K., New York, gift to Yale University, \$100,000; gift to Yale, \$150,000.

Jewell, Mrs. C. A., Hartford, Conn., gift to charity, \$14,000.

Jewish Home for Consumptives, gift by Harry E. Meyer, Baltimore, Md., \$10,000.

Jewish Technical Institute, Palestine, gift by Jacob Schiff, \$100,000.

Johns Hopkins University, gift by Henry Phipps, \$1,000,000.

Johnston, A. S., Boston, Mass., gift to Y. M. C. A., \$60,000.

Jones, Mrs. J. H., Chester, Mass., gift to library, \$10,000.

Jones, Mary E., Knoxville, Ill., gift to charity, \$250,000; gift to church, \$9000.

Kansas City, Mo., gift for social settlement by various donors, \$50,000.

Kelly, H. C., N. Y., gift to School of Industrial Art, \$100,000.

Kemper, Nathan, N. Y., will to charity, \$5000.

Kendall, Ellen A., Boston, Mass., gift to Wellesley College, \$80,000.

Kennedy, John S., New York, gift to church, \$7,750,000; gift to charities, \$4,500,000; gift to colleges, \$8,525,000; gift to Metropolitan Museum of Art, \$2,250,000; gift to New York Public Library, \$2,250,000; gift to miscellaneous objects, \$7,025,000.

Kenyon College, gift by Samuel A. Mather, \$100,000.

Kershaw, Sarah, Salt Lake City, Utah, gift to church, \$8000.

Kienzler, Herman, New York, will to six hospitals, \$80,000.

Kimberly, J. A., Neenah, Wis., gift to Manual Training School, \$5000.

King, S. E., Ottawa, Ill., gift for educational purposes, \$50,000; gift to charity, \$40,000.

Kirkpatrick, Mrs. E. M., Parma, Idaho, gift to Southern College of Idaho, \$20,000.

Knox College, gift by J. V. N. Standish, \$100,000; gift by various donors, \$80,000.

Koch Institute, Berlin, gift by Andrew Carnegie, \$125,000.

Krafft, Elizabeth, Red Bud, Cal., gift to library, \$30,000.

Lancaster Business College, gift by Mr. and Mrs. D. B. Schreiner, \$5000.

Lang, Mrs. Henry, Montclair, N. J., gift part museum, \$50,000.

Langdale, Margaret E., Cambridge, Mass., gift to Phillips Exeter Academy, \$50,000; gift to Wilkesbarre University, \$50,000.

Langdell, Margaret E., Cambridge, Mass., gift to Harvard University, \$25,000.

Latham, John C., New York, will for park maintenance, \$30,000; will to charity, \$50,000.

Lathrop, Ariel, San Francisco, Cal., gift to charity, \$1,000,000.

Laughlin, George M., Pittsburg, Pa., gift to Washington and Jefferson College, \$100,000; to charities, \$125,000; to Y. M. C. A., \$25,000.

Lawrence, Arthur, Stockbridge, Mass., gift to charity, \$115,000.

Lawrence, M. V., New York, gift to hospital, \$150,000.

Lawrence, Sebastian D., New London, gift to charity, \$600,000.

Lawrence University, gift by George F. Peabody, \$25,000.

Lawson, Victor F., Chicago, Ill., gift to Y. M. C. A., \$100,000.

Lee, Mary Curtis, Richmond, Va., gift to charity, \$5000.

Lehigh University, gift by Alumni, \$25,000; gift by John Fitz, \$50,000.

Lewis, Mary, Philadelphia, Pa., gift to Hampton Institute, \$120,000; gift to church, \$15,000; gift to charity, \$48,000; gift to Hampton Institute, \$50,000; gift to Tuskegee Institute, \$10,000.

Lewis, Sally J., Philadelphia, Pa., gift to charity, \$6000.

Lewisohn, Adolf, New York, gift to charity, \$10,000; gift to church, \$10,000.

Lincoln Home Association, gift by Mrs. F. F. Alms, \$100,000.

Litchfield, Nancy J., Somerville, Mass., gift to church, \$13,000.

Livingston, C. O., Jacksonville, Fla., gift to church, \$250,000.

Long, R. A., Kansas City, Mo., gift to church, \$50,000.

Long Beach, Cal., gift by unnamed donor, \$50,000.

Look, H. W., Trenton, N. J., will to charity, \$100,000; will to church, \$300,000.

Lord, Edith R., New York, gift to charity, \$27,250.

Los Angeles, Cal., gift to church by unnamed donor, \$300,000.

Lundgren, John R., Chicago, Ill., gift to Northwestern University, \$25,000.

Lusby, Emily, gift to University of America, \$120,000.

Macalester College, additional gift by Andrew Carnegie, \$20,000.

McAllister, W. J., Philadelphia, Pa., gift to charity, \$41,200.

McClelland, Andrew, Pueblo, Colo., gift to charity, \$5000.

McCormick, Mrs. C. H., Chicago, Ill., gift to University Theological Seminary, Richmond, Va., \$20,000.

McCormick, Nettie F., Chicago, Ill., gift to Washington and Tusculumbia College, \$20,000.

McGill University, gift by Andrew Carnegie, \$100,000.

Mackay, C. H., gift to University of Nevada, \$250,000.

McKim, Charles F., New York, conditional bequest to American Academy at Rome, \$1,000,000.

McKittrick, Marie N., St. Louis, Mo., gift to charity, \$8500.

McPherson College, gift by Joseph Richardson, \$14,000.

McQuade, A. J., New York, gift to charity, \$13,000.

Manassas School for Negroes, gift by Andrew Carnegie, \$15,000.

Manhattan Bible Society, gift by Bloodgood Cutter, \$655,000.

Mannheimer, Augusta, Chicago, will to charity, \$25,500; will to Rush Medical College Library, \$5000.

Manual Training School (Oshkosh, Wis.), gift by Helen A. Beach, \$5000.

Markle, John, Hazleton, Pa., gift of library to town, \$40,000.

Marshall, Susanna, Philadelphia, will to charity, \$7000.

Marston, George, San Diego, Cal., gift to Pomona College, \$10,000.

Mason, W. S., Evanston, Ill., gift of playground to city, \$25,000.

Maternity Hospital, New York, gift by Mr. and Mrs. W. C. Sloane, \$150,000.

Mather, Mrs. Samuel, Cleveland, O., gift to Kenyon College, \$100,000; gift to Western Reserve College, \$130,000; Hampton Institute, \$5,000; Missions, \$110,000; Y. M. C. A., \$15,000.

Mealy, Catharine T., Philadelphia, Pa., gift to charity, \$23,700.

Memorial Association, gift by Edwin Clapp, \$70,000.

Mercersburg Academy, gift by unnamed donor, \$25,000.

Merriam, Sybl A., Leominster, Mass., gift to church, \$30,400.

Merrill, Joseph E., Newton, Mass., gift to Bowdoin College, \$300,000.

Methodist African Missions, gift by various donors, \$200,000.

Methodist Church, for missions, \$2,000,000.

Methodist Women's College of Alabama, gift by unnamed donor, \$10,000.

Metropolitan Museum of Art, gift of colonial furniture by Mrs. Russel Sage, \$100,000; John S. Kennedy, \$2,250,000; Rutherford Stuyvesant, \$20,000.

Metzner, Adolph, Evansville, Ind., gift to charity, \$88,000.

Miami University, gift by Whitelaw Reid, \$5000.

Middlebury College, gift by various donors, \$75,000; by various donors, \$41,361.

Miles, Margaret M., San Francisco, Cal., gift to library, \$5000.

Miller, H. W., Morristown, N. J., gift to church, \$5000.

Miller, Helen W., Boston, Mass., gift to Brown University, \$20,000.

Miller, Mrs. W. H., Providence, R. I., gift to charity, \$12,000; library, \$5000; church, \$5000; Athenæum, \$5000; Brown University, \$20,000.

Milliken, James, Decatur, Ill., gift to Decatur College, \$400,000.

Milwaukee (Auditorium), gift by Elizabeth Plankington, \$10,000.

Milwaukee Rescue Mission, gift by various donors, \$75,000.

Missions, gift by Mrs. Samuel Mather, \$110,000.

Mogg, Francis, Hoboken, N. J., gift to charity, \$17,000.

Montefiore Home, gift by various New York donors, \$100,000.

Montpelier Seminary, gift by D. K. Pearsons, \$50,000.

Mooney, Ella, Red Hook, N. Y., gift to National Academy of Design, \$25,000.

Moore, W. R., Memphis, Tenn., gift to Institute of Technology, \$1,000,000.

Morgan, J. Pierpont, N. Y., gift to Italian Earthquake Fund, \$10,000.

Morgenthau, Henry, New York, gift to church, \$5000.

Morningside College, gift by C. W. Payne, \$74,000; James J. Hill, \$10,000.

Morris, Mrs. Nelson, Chicago, gift to found institution of medical research, \$250,000.

Morris, Mrs. Sarah, Chicago, Ill., gift to charities, \$450,000.

Morton, Levi P., gift of sanitarium to State of West Virginia, \$150,000.

Mt. Hermon School, gift of Miriam S. Shattuck, \$5000.

Mount Holyoke Seminary, gift by various donors, \$111,786.

Mount Pleasant Seminary, gift by Mrs. K. E. Drafts, \$5000.

Mount Zion Hospital, gift by J. W. Hellman, San Francisco, Cal., \$100,000.

Mulford, H. Louisa, New York, will to church, \$6000.

Murphy, Anna W., Philadelphia, Pa., gift to charity, \$17,000.

Myers, George H., New York, gift to Yale University, \$15,000.

National Academy of Design, gift by Ella Mooney, \$25,000.

Neefus, Peter I., N. Y., gift to church, \$63,000.

Neff, George R., Philadelphia, Pa., gift to charity, \$45,500; colleges, \$52,000; church, \$7000.

Neff, J. F., San Francisco, Cal., gift to charity, \$11,000.

Negro Baptist College, Selma, Ala., gift by various donors, \$5000.

Neustadt, Sigmund, N. Y., gift to charity, \$100,000.

Newburg Hospital, gift by Benjamin B. Odell, \$25,000.

New England Conservatory of Music, gift by Henrietta H. Shapleigh, \$5000.

New Haven, Conn. (General Hospital Society), gift by unnamed donor, \$350,000.

New Theatre, gift by W. K. Vanderbilt, N. Y., \$50,000.

New York, gift for municipal betterment, by Andrew Carnegie, \$20,000; John D. Rockefeller, \$20,000; other donors, \$60,000; gift for fighting tuberculosis (various donors), \$250,000; gift to charity by unnamed donor, \$1,000,000.

New York Museum of Sanitation and Safety, gift by Mary Baker G. Eddy, \$5000.

New York Public Library, gift by John S. Kennedy, \$2,250,000.

New York State Federation of Woman's Clubs, gift by Mrs. Russell Sage, \$10,000.

New York University, gift by Marie E. Tailer, \$25,000.

New York Zoölogical Association, gift by Phæbe A. Thomas, \$10,000.

Noble, Elizabeth F., Taunton, Mass., gift to charity, \$75,000.

Noble, Mrs. Joseph, N. Y., gift to charity, \$611,945.

Noonan, John F., Boston, Mass., will to charity, \$50,000.

North, Elizabeth F., Mansfield, Mass., gift to charity, \$10,000.

Northfield Seminary, gift by Miriam S. Shattuck, \$5000.

Northfield, Vt., Girls' School, gift by Caroline Phelps Stokes, \$20,000.

Northwestern University, gift by N. W. Harris, \$180,000.

Norwich, Mass., gift by Calvin Paige, \$155,000.

Noyes, La Verne W., Chicago, Ill., gift to education, \$10,000.

Oddfellows' Home, Wheeling, W. Va., gift by Henry G. Davis, \$150,000.

Odell, Benjamin B., Newburg, N. Y., gift to Newburg hospital, \$25,000.

Ohio State University, gift by R. P. Scott, Cadiz, O., \$25,000.

Oklahoma State Baptist College, gift by unnamed donor, \$10,000.

O'Leary, Frank A., Pittsburg, Pa., gift to church, \$21,000.

Oliver, George T., Pittsburg, Pa., gift to Bethany College, \$25,000.

Onondaga County Orphan Asylum, gift by Mrs. Russell Sage, \$10,000.

Paige, Calvin, New York, gift to town of Norwich, Mass., \$155,000; gift to church, \$25,000; gift to education, \$25,000; to church, \$25,000; to Norwich, \$135,000.

Park, W. G., Pittsburg, Pa., gift to charity, \$1,000,000.

Park, Wm. A., Mineola, L. I., gift to church, \$400,000.

Park College, gift by Thomas H. Swope, \$50,000.

Parker, Mary C., St. Louis, Mo., gift to church, \$6000.

Parloa, Maria, Bethel, Conn., gift to library, \$5000.

Patten, James A., Evanston, Ill., gift to Evanston Hospital, \$40,000; to Y. M. C. A., \$10,000.

Patterson, Hetty A., Philadelphia, Pa., gift to charity, \$14,000.

Payne, C. W., Westside, Iowa, gift to Morningside College, \$74,000.

Peabody, George F., Appleton, Wis., gift for park, \$50,000; to charity, \$50,000; to Lawrence University, \$25,000.

Pearsons, D. K., Chicago, Ill., gift to City Missionary Society, \$50,000; to Congregational Woman's Training School, \$21,000; to Montpelier Seminary, \$50,000; to Piedmont College, \$25,000; to Berea College, \$25,000; to Newberry College, \$10,000; to Whitman College, \$50,000; to Chicago Theological Seminary, \$100,000; to Y. M. C. A., \$20,000; to Whitman College, \$50,000; to Huron College, \$15,000; to Chicago Theological Seminary, \$25,000.

Pegram, John C., Providence, will to charity, \$8000.

Perchmacher, H. E., Boston, Mass., gift to Phillips Exeter Academy, \$50,000.

Perkins, Edith F., Burlington, Ia., gift to Harvard University, \$30,000.

Perkins heirs, gift of park to Colorado Springs, Col., \$200,000.

Phelps, James G., Tarrytown, N. Y., gift to charity, \$15,000; to church, \$20,000.

Phillips Exeter Academy, gift by Margaret E. Langdale, \$50,000; by H. E. Perchmacher, Boston, \$50,000.

Phipps, Henry, New York, gift to fighting tuberculosis, \$500,000; Johns Hopkins University, \$1,000,000.

Piedmont College, gift by D. K. Pearsons, \$25,000.

Pierce, L. W., New York, gift to Yale University, \$6000.

Pitcairn, Mrs. Robert, Lewistown, Pa., gift of organ to church, \$5000.

Pittsburg, Pa., gift of land for park by Henry C. Frick, \$2,000,000; to local school teachers, by unnamed donors, \$250,000.

Plankington, Elizabeth, Milwaukee, will to Y. W. C. A., \$100,000; will to Auditorium, \$10,000.

Polytechnic Institute, Brooklyn, N. Y., gift by various donors, \$500,000.

Pomona College, gift by George Marston, San Diego, Cal., \$10,000.

Pope, Col. A., Boston, Mass., will to church, \$10,000; to charity, \$10,000.

Prager, Israel L., N. Y., gift to charity, \$5000.

Princeton University, gift by various donors, \$57,000; by Cornelius C. Cuyler, \$100,000; by various donors, \$145,321; by Cleveland Dodge, N. Y., \$100,000; various donors, \$45,939; W. C. Procter, \$500,000.

Procter, W. C., Cincinnati, O., gift to Princeton University, \$500,000.

Prud-Homms, Elizabeth, Philadelphia, Pa., gift to charity, \$20,000.

Pupin, M. L., Morristown, N. J., gift to charity, \$10,000.

Railway Employees' clubhouse, gift to, by August Belmont, \$10,000.

Randall, Lyman W., Springfield, Mass., gift to charity, \$6000.

Randolph, Emma F., Bethlehem, Pa., gift to charity, \$20,000.

Rankin, W. A., Onarga, Ill., gift to Grand Prairie Seminary, \$50,000.

Red Cross, gift by various donors, \$300,000.

Redlands, Cal. (University), gift by various donors, \$300,000.

Reid, Whitelaw, gift to Miami University, \$5000.

Reilly, John, New Orleans, La., will to charity, \$50,000.

Reinischer Frohsun Society, gift by John H. Haase, \$100,000.

Reitz, T. J., Evansville, Ind., gift to charity, \$100,000.

Rhodus, George, Indianapolis, Ind., gift for parks, \$750,000.

Rice, Agnes L., Newport, R. I., gift to charity, \$14,000; to church, \$19,000.

Rice, William B., Quincy, Mass., gift to charity, \$240,000.

Richardson, Mrs. G. D., gift to Tulane University, \$55,000.

Richardson, James, Winfield, Kan., gift to Southwestern University, \$15,000.

Richardson, J. D., Empire, Kan., gift to Y. M. C. A., \$10,000.

Richardson, Joseph, McPherson, Kan., gift to McPherson College, \$14,000.

Riggs, David W., Pittsburg, Pa., gift to church, \$250,000.

Robbins, Mary S., New York, gift to charity, \$20,000.

Rochester University, gift by Ira D. Van Duzer, Boston, \$5000.

Rockefeller, John D., New York, gift to Italian Earthquake Fund, \$10,000; to University of Chicago, \$1,000,000; to New York for municipal betterment, \$20,000; to University of Chicago, \$96,960; for investigation of hookworm disease, \$1,000,000; additional gift to General Education Board, \$10,000,000; to American Academy at Rome, \$100,000; Brown University, \$25,000.

Rogers, H. H., New York, gift to church at Fairhaven, Mass; \$20,000; school of Fairhaven, Mass., \$100,000.

Rollins, George A., Nashua, N. H., gift to church, \$8000.

Rose Polytechnic Institute, gift by Susan F. Hemingway, \$500,000.

Rosengarten, J. A., Philadelphia, Pa., gift to University of Pennsylvania, \$5000.

Rosenwald, Julius, Chicago, Ill., gift to Chicago Hebrew Institute, \$25,000; to Cincinnati Hebrew Union College, \$50,000; to Jewish charities, \$50,000; to Hebrew Institute, \$20,000.

Rubens, Charles, New York, will to charity, \$100,000.

Runwill, Annie E., Springfield, Mass., gift to Harvard University, \$15,000.

Rush Medical College Library, gift by Augusta Mannheimer, \$5000.

Russell, Franklin W., Pittsburg, Pa., gift to charities, \$100,000; to Y. M. C. A., \$50,000.

Russell, Mrs. H. E., Warwick, R. I., gift to charity, \$345,000.

Rutgers College, gift by unnamed donors, \$6000; by H. W. Bookstaver, \$17,500.

Ryerson, Martin A., Chicago, gift to Y. M. C. A., \$5000.

Sacramento, Cal., gift to church by unnamed donor, \$25,000.

Sage, Mrs. Russell, New York, gift to New York State Federation of Woman's Clubs, \$10,-

000; colonial furniture to Metropolitan Museum of Art, \$100,000; Silver Bay Association, \$5000; American School for Girls sanitarium, \$10,000; Onondaga County Orphan Asylum, \$10,000; Methodist Church for Bible extension, \$500,000; Syracuse, N. Y., Presbyterian church, \$10,000; Syracuse University, \$50,000; Italian Earthquake Fund, \$5000.

Saginaw, Mich. (Manual Training School), gift by Arthur Hill, \$200,000.

St. John's Episcopal College, gift by John K. and N. B. Walker, \$5000.

St. Louis, Mo., church, gift by various donors, \$20,000.

St. Luke's Hospital, N. Y., will by Annie P. Burgess, \$5000.

St. Paul, Minn., gift to church by unnamed donor, \$100,000.

St. Thomas College, St. Paul, gift by unnamed donor, \$75,000.

Sampson, Joseph, Boston, Mass., gift to charity, \$7000.

Saunders, Ervin, Yonkers, N. Y., gift to charity, \$450,000.

Schetten, Charles, Kansas City, gift to charity, \$111,500.

Schiff, Jacob H., New York, gift to Hebrew Training School, \$50,000; for Jewish schools for training teachers, \$100,000; paintings to public library, \$37,000; to church, \$10,000; Jewish Technical Institute, Palestine, \$100,000; University, of Philadelphia, \$5000.

Schiffel, Adolph, New York, gift to charity, \$13,000.

School of Applied Science, Pittsburg, Pa., gift by Andrew Carnegie, \$2,000,000.

Schriner, Mr. and Mrs. D. B., Lancaster, Pa., gift to Y. M. C. A., \$5000; Y. W. C. A., \$5000; Business College, \$5000.

Schwab, Charles M., New York, gift to charity, \$500,000.

Scott, R. P., Cadiz, O., gift to Ohio State University, \$25,000.

Searles, Edward F., Methuen, Mass., gift to town, \$66,000.

Sears, R. W., Oak Park, Ill., gift to Y. M. C. A., \$10,000.

Seligman, I. N., New York, gift to church, \$5000.

Shaker Community, gift by Henry Clough, Pittsburg, Pa., \$50,000.

Shakespeare Memorial Theatre, gift by Mary H. Dodge, \$350,000.

Shapleigh, Henrietta H., Brooklyn, gift to charity, \$20,000; New England Conservatory of Music, \$5000.

Sharples, James, Scotland, Ind., gift to church, \$6000.

Shattuck, Miriam S., Boston, will to Wellesley College, \$5000; will to church, \$25,000; will to Mt. Hermon School, \$5000; will to Northfield Seminary, \$5000.

Shevlin, Thomas, Minneapolis, Minn., gift to University of Minnesota, \$50,000.

Shoemaker, Levi I., Wilkesbarre, Pa., gift to Yale University, \$500,000.

Siegel, Mr. and Mrs. Henry, gift to charity, \$10,000.

Silver Bay Association, gift by Mrs. Russell Sage, \$5000.

Slate, H. M., Athol, Mass., gift to library, \$10,000; to library, \$8000.

Sloan, W. D. and H. T., New York, gift to Yale University, \$425,000.

Sloane, Mr. and Mrs. W. C., New York, gift to Maternity Hospital, \$150,000.

Smiley, Charles, Haverhill, Mass., gift to charity, \$35,000.

Smith, Anne, Philadelphia, Pa., gift to charity, \$5000.

Smith, C. F., New York, gift to charity, \$5000.

Smith, Eleanor, Dayton, Ohio, will to Western College, \$9000.

Smith, Emily E., Nashua, N. H., gift to charity, \$75,000.

Smith, Horace, Springfield, Mass., gift to library, \$174,693; church, \$181,537; colleges, \$130,118; charity, \$103,400.

Smith, J. W., Boston, Mass., gift to Harvard University, \$10,000.

Smith, William W., Poughkeepsie, N. Y., gift to Y. M. C. A., \$265,000.

Snider, T. A., Cincinnati, gift to church, \$50,000.

Snow, Clara, Brockton, Mass., gift to charity, \$75,000.

Southern Baptist Theological College, gift by various donors, \$250,000.

Southern College of Idaho, gift by Mrs. S. M. Kirkpatrick, \$20,000; Mrs. E. M. Kirkpatrick, \$20,000.

Southwestern University, gift by James Richardson, Winfield, Kan., \$15,000; unnamed donor, \$30,000.

Sparks, Julius P., Carlyle, Ill., gift to church, \$30,000.

Sprague, O. S. A., Chicago, Ill., gift to charity, \$250,000.

Standish, J. V. U., Galesburg, Ill., gift to Knox College, \$100,000.

Standard Oil Company, gift to Earthquake Fund, \$10,000.

State Normal School, gift by Simon Guggenheim, Denver, Col., \$50,000.

Stern, Bernhard, Milwaukee, Wis., gift to charity, \$5000.

Sterndish, Adelaide, Brookline, Mass., gift to charity, \$9000.

Stevenson, Isaac, gift to Wisconsin State Park, \$100,000.

Stillman, James, New York, gift to church, \$10,000.

Stockton, R. H., St. Louis, Mo., gift to Christian College, \$25,000.

Stokes, Caroline Phelps, New York, gift to Hampton Institute, \$10,000; Tuskegee Institute, \$10,000; Calhoun Colored School, \$10,000; Girls' School, Northfield, Vt., \$20,000; charity, \$3,000,000.

Stone, Mrs. G. F., Morristown, N. J., gift to charity, \$37,000; to church, \$15,000.

Storer, Mrs. Bellamy, gift to Washington University, \$10,000.

Strafford, N. H., Academy, gift by Della E. Cate, \$200,000.

Strasburger, Louis, New York, gift to charity, \$8000.

Strauss, Nathan, New York, gift for fighting tuberculosis, \$500,000.

Streepy, John, Nazareth, Pa., gift to church, \$8000.

Strickler, Adelin C., Mt. Joy, Pa., gift to charity, \$12,000.

Stuyvesant, Rutherford, New York, gift to Metropolitan Museum of Art, \$20,000; to church, \$10,000.

Summit, N. J. (church), gift by two unnamed donors, \$25,000.

Swope, Thomas H., Kansas City, Mo., gift to Park College, \$50,000; charity, \$50,000; Y. M. C. A., \$10,000; Y. W. C. A., \$10,000.

Syracuse University, gift by J. D. Archbold, \$375,000; by Mrs. Russell Sage, \$50,000.

Syracuse, N. Y., gift of Presbyterian church by Mrs. Russell Sage, \$10,000.

Taft, C. P., Cincinnati, O., gift to charity, \$10,000.

Tailer, Marie E., New York, gift to New York University, \$25,000; to charity, \$17,500; to church, \$5000.

Tappan, Mrs. W. C., Attleboro, Mass., gift to Y. M. C. A., \$60,000.

Teachers College, New York, gift by unnamed donor, \$1,100,000.

Thomas, G. C., Philadelphia, Pa., gift to church, \$5000; to charity, \$5000; to church, \$628,000; to charity, \$210,000.

Thomas, Phoebe A., New York, to charity, \$121,000; to American Museum of Natural History, \$5000; to New York Zoölogical Association, \$10,000.

Thompson, Mrs. F. F., New York, gift for post-office site at Canandaigua, N. Y., \$20,000.

Thompson, F. G., Philadelphia, Pa., gift to Harvard University, \$50,000.

Tilton, Catharin S., New Orleans, La., will to charity, \$119,600.

Todd, Sarah, Carlisle, Pa., gift to charity, \$530,000.

Toledo, O. (Hospital Fund), gift by various donors, \$120,745.

Tompkins, Eugene, Boston, Mass., gift to charity, \$900,000.

Tourtelotte, Mr. and Mrs. J. F., Minneapolis, Minn., gift of school to Thompson, Conn., \$100,000.

Tralee, Ireland (Library), gift by Andrew Carnegie, \$15,000.

Treman, Henry S., New York, gift to College of the City of New York, \$5000.

Triggs, Emeline D., Eureka Springs, Ark., gift to Hendrix College, \$10,000.

Trinity College, gift by the Duke family, Durham, N. C., \$5,000,000.

Tucker, Miriam S., Boston, will to Tuskegee Institute, \$5000.

Tulane University, New Orleans, La., gift by Mrs. A. D. Richardson, \$55,000.

Tuskegee Institute, gift by Mary Lewis, \$10,000; Francis Clarke, \$5000; Caroline Phelps Stokes, \$10,000; Miriam S. Tucker, Boston, \$5000; Maria A. Hollingswood, \$5000.

Union College, gift by John Wallace, \$50,000.

United States Congress, gift to Italian Earthquake Fund, \$800,000.

United States Steel Company, gift to Earthquake Fund, \$25,000.

University of America, gift by Emily Lusby, \$120,000.

University of California, gift by J. S. Graves, \$20,000.

University of Chicago, gift by John D. Rockefeller, \$1,096,960.

University of Illinois, gift by unnamed donor, \$10,000.

University of Minnesota, gift by Thomas Shevlin, \$50,000.

University of Nevada, gift by C. H. Mackay, \$250,000; unnamed donor, \$100,000.

University of Pennsylvania, gift by J. A. Rosengarten, \$5000; by various donors, \$300,000; gift by Jacob Schiff, \$5000; by Esther G. Hood, \$100,000; by Julie G. Dayton, \$7000; by Eleanor Magee, \$30,000.

University of Tennessee, gift to library by Andrew Carnegie, \$40,000.

University Theological Seminary, Richmond, gift by Mrs. C. H. McCormick, \$20,000.

University of Virginia, gift by Andrew Carnegie, \$500,000; various donors, \$155,000; by various donors, \$500,000.

Ursinus College, gift by various donors, \$25,000.

Vail, Mrs. C. D., Geneva, N. Y., gift to Hobart College, \$5000.

Valentine, Mitchell, Westchester, N. Y., gift to charity, \$1,000,000.

Vanderbilt, Alfred G., New York, gift to Yale University, \$25,000.

Vanderbilt, Cornelius, New York, gift to Yale University, \$10,000.

Vanderbilt, F. W., New York, gift to Yale University, \$50,000.

Vanderbilt, W. K., New York, gift to New Theatre, \$50,000.

Vanderbilt, Mrs. W. K., New York, gift to charity of tenement house for tuberculosis patients, \$1,000,000.

Van Duzer, Ira D., Boston, Mass., gift to Harvard University, \$5000; gift to Rochester University, \$5000.

Van Horn, Amos H., Newark, N. J., gift for city parks, \$150,000; to charity, \$180,000.

Van Wormer, Asa, Cincinnati, O., will to charity, \$250,000.

Walgering, Frank, New York, gift to charity, \$81,000.

Walker, John K. and N. B., Buffalo, N. Y., gift to St. John's Episcopal College, \$5000.

Wallace, John, New York, gift to church, \$750,000; to Union College, \$50,000.

Wallace, Sarah, Paterson, N. J., gift to church, \$50,200; to charity, \$86,500; to colleges, \$14,000.

Washington and Jefferson College, gift by George M. Laughlin, \$100,000.

Washington University, gift by Mrs. Bellamy Storer, \$10,000.

Washington and Tusculumbia College, gift by Nettie F. McCormick, \$20,000; by various donors, \$80,000.

Wasson, Cynthie M., Springfield, Mass., gift to Bryn Mawr College, \$7000.

Weinstein, Simeon, New York, gift to charity, \$8500; to education and charity, \$1,200,000.

Wellesley College, gift by Miriam S. Shattuck, \$5000; by Ellen A. Kendall, \$80,000.

Wells College, gift by various donors, \$60,700.

Wendorf, Ignatius J., Cleveland, O., gift to charity, \$10,000.

Wesley Hospital, gift by William Deering, Chicago, Ill., \$55,000.

Western College, gift by Eleanor Smith, Dayton, O., \$9000.

Western Reserve College, gift by Mrs. Samuel Mather, \$130,000.

West Virginia, gift of sanitarium by Levi P. Morton, \$150,000.

Wetherell, Caroline J., Philadelphia, Pa., gift to charity, \$5200.

Wharton, Joseph, Philadelphia, Pa., gift to Swarthmore College, \$100,000.

Whipple, Sherman L., Boston, Mass., gift to Colby Academy, \$130,000.

White, A. S., Cincinnati, O., gift to charity, \$75,000.

White, M. M., Cincinnati, O., gift to Earlham College, \$10,000.

Whitehead, Mrs. Joseph B., Atlanta, Ga., gift to Georgia School of Technology, \$5000.

Whitehead, Mrs. Elisha, Chicago, Ill., gift to Home of the Friendless, \$5000.

Whitewater, J. A., Waukesha, Wis., will to Carroll College, \$7000.

Whiting, Albert D., Boston, Mass., gift to charity, \$50,000.

Whitman College, gift by D. K. Pearsons, \$50,000; gift by D. K. Pearsons, Chicago, \$50,000.

Whitman, Sarah B., Brookline, Mass., gift to charity, \$10,000.

Whitney, Dorothy, New York, gift for fighting tuberculosis, \$100,000.

Whitworth College, gift by unnamed donor, \$25,000.

Wickwise, Charles F., gift to hospital at Cortland, N. Y., \$70,000.

Wilcox, G. G., Evanston, Ill., gift to church, \$12,000.

Wilder, Amherst H., St. Paul, Minn., gift to charity, \$2,200,000.

Wilkesbarre University, gift by Andrew Carnegie, \$175,000; Margaret E. Langdale, \$50,000.

Williams, Charles H., Buffalo, N. Y., gift to library, \$10,000.

Williams, Job, St. Louis, Mo., gift to charity, \$90,000.

Wilson, H. S., Charleston, S. C., gift to church, \$5000.

Wisconsin State Park, gift by Isaac Stevenson, \$100,000.

Wolff, Sigmund and family, St. Louis, gift to hospital, \$10,000.

Wood, Charles E., gift to Battle Creek Sanitarium, \$500,000.

Wooster University, gift by unnamed donor, \$150,000.

Worcester Academy, gift by Francis A. Gas-kill, \$5000.

Worcester Polytechnic Institute, gift by Elmer P. Howe, \$15,000.

Yale Divinity School, gift by Livia H. Day, New Haven, Conn., \$15,000.

Yale tuberculosis investigation, by unnamed donor, \$100,000.

Yale University, gift by Levi I. Shoemaker, \$500,000; W. D. and H. T. Sloan, \$425,000; Alfred G. Vanderbilt, \$25,000; George H. Myers, \$15,000; C. H. Farnam, \$500,000; Mrs. M. J. Jesup, \$50,000; F. W. Vanderbilt, \$50,000; unnamed donor, \$50,000; Mrs. W. K. Jesup, \$100,000; Mr. and Mrs. J. W. Daniels, \$50,000; Richard H. Fellowes, \$50,000; Mrs. J. W. Daniels, \$5000; Cornelius Vanderbilt, \$10,000; Mrs. M. K. Jesup, \$100,000; unnamed donor, \$10,000; L. W. Pierce, \$6000.

Young, George, New York, will to charity, \$100,000.

Y. M. C. A., gift by Martin A. Ryerson, \$5000; Santa Fé Railroad Co., \$150,000; Mrs. W. C. Tappan, Attleboro, Mass., \$80,000; Boston, Mass., various donors, \$514,377; A. S. Johnston, Boston, \$60,000; Bryn Mawr, Pa., various donors, \$100,000; Chelsea, Mass., various donors, \$71,000; Chicago, Ill., various donors, \$90,553; D. K. Pearsons, \$20,000; J. A. Patten, \$10,000, unnamed donor, \$25,000; D. K. Pearsons, \$20,000, various donors, \$185,000; Victor F. Lawson, Chicago, \$100,000, various donors, \$12,360, gift by various donors, \$11,000; Cleveland, O., Mrs. Samuel Mather, \$15,000; Gary, Ind., E. H. Gary, \$100,000; Kansas City, Mo., various donors, \$161,885, various donors, \$303,000; Thomas H. Swope, \$10,000; Kokomo, Ind., gift by various donors, \$50,000; Mr. and Mrs.

D. B. Schreiner, Lancaster, Pa., \$5000; Lawrence, Mass., various donors, \$156,500; Manchester, N. H., various donors, \$153,000; E. G. Eberhard, Mishawaka, Ind., \$7500; Newton, Mass., various donors, \$100,000; New York, unnamed donor, \$250,000; Oakland, Cal., various donors, \$221,000; R. W. Sears, Oak Park, Ill., \$10,000; Paterson, N. J., various donors, \$25,000; Pawtucket, R. I., various donors, \$50,000; Pittsburg, Pa., George M. Laughlin, \$25,000, Franklin Russell, \$50,000; gift by William W. Smith, Poughkeepsie, N. Y., \$265,000; Pueblo, Col., various donors, \$111,460; Tampa, Fla., various donors, \$83,000; Topeka, Kan., various donors, \$50,616.

Y. W. C. A., Milwaukee, Elizabeth Plankington, \$100,000.

GILDER, RICHARD WATSON. An American editor and poet, died November 18, 1909. He was born at Bordentown, N. J., February 8, 1844, the son of the Rev. W. H. Gilder, a Methodist Episcopal clergyman. While the boy was yet very young the parents removed to Flushing, L. I., where his father established a seminary. He early showed a leaning towards letters, and before his twelfth year he had issued a newspaper, called the *St. Thomas Register*, at Flushing. For this paper he set the type and performed all the other necessary labor. Four years later he was joined by four other youths in the publication of a campaign journal which advocated the cause of Bell and Everett in the Presidential campaign. This paper was ardently anti-slavery. His health was so delicate that he was educated at home by his father and at the seminary, of which the latter was the head. In spite of the frailty of his physique he enlisted in 1863 in Landis's Philadelphia Battery, and served until Lee was beaten back from Pennsylvania. He was under fire at the defense of Carlisle. His father was chaplain of the Fortieth New York Regiment and died while ministering to soldiers in the Army Smallpox Hospital. Young Gilder had studied law, but upon the death of his father in 1864 he was obliged to earn his own living and took a position as paymaster of the Camden and Amboy Railroad. Early in 1865 he became a reporter for the Newark, N. J., *Advertiser*. In turn he became political writer, city editor and managing editor. After several years he, with Newton Crane, then Consul at Manchester, England, founded the Newark *Register*. This was not successful, and in 1870 he became editor of *Hours at Home*, a monthly magazine, published by Scribners. His literary work had already given him a reputation. In the same year *Scribner's Monthly Magazine* was established under the editorship of Dr. J. G. Holland and the latter gave Mr. Gilder the position of managing editor. He wrote for the magazine "The Old Cabinet" department, which became one of its most attractive features. On the death of Dr. Holland, Mr. Gilder was made editor-in-chief and obtained a share in the publication. The magazine was shortly afterwards sold and reorganized, and its name was changed to *The Century*, and Mr. Gilder became, in 1881, its editor, and held this position until the time of his death. Although his inclinations were toward literary and scholarly life, Mr. Gilder took an active interest in politics and social problems. He was an independent Democrat and a close and intimate friend of Grover Cleveland. In 1903 he was nominated

to run for alderman in the Fifth District of New York City by the Citizens' Union. In 1894 he was appointed by Governor Flower a member of the Tenement House Commission, of which he was chairman. His work as a member of this commission won him wide recognition, and it was largely due to his efforts that radical changes were made in the building of tenements in New York City. During all the period of his editorial work Mr. Gilder wrote from time to time verse, which was widely read and appreciated. His first book of poems, *The New Day*, was published in 1875. This was followed in 1891 by *Two Worlds, and Other Poems*, and between 1893 and 1898 four other volumes, *The Great Remembrance and Other Poems*, *Five Books of Song, For the Country*, and *In Palestine and Other Poems*. Other volumes of poems were entitled *The Celestial Passion*, *A Christmas Wreath*, *The Fire Divine*, and *In Helena's Garden*. A complete edition of his poetical works was published in 1909. He received the degree of L. H. D. from Princeton and Yale, and LL. D. from Dickinson and Wesleyan. In 1874 he married Helena de Kay, the daughter of Commodore George de Kay and granddaughter of Joseph Rodman Drake.

GILLESPIE, GEORGE DE NORMANDIE. An American Protestant Episcopal bishop, died March 19, 1909. He was born at Goshen, N. Y., in 1819, and graduated from the General Theological Seminary in 1840. He held pastorates in Leroy, N. Y., Crescent, O., Palmyra, N. Y., and Ann Arbor, Mich. until 1875, when he was made Bishop of Western Michigan. From 1876 until his death he was chairman of the Michigan State Board of Corrections and Charities. Among his writings are *The Communion of Saints*, *An Holy Priesthood*, and *The Season of Lent*.

GILMAN, ARTHUR. An American educator and author, died December 28, 1909. He was born in 1837 at Alton, Ill., and was educated in St. Louis and New York. From 1857 to 1862 he was engaged in the banking business in New York City and in the latter year was obliged to retire from business on account of ill health. He removed to Cambridge, Mass., in 1870. In 1877 he established the society for the collegiate instruction of women, which was known as the Harvard Annex, and later became Radcliffe College. He was a voluminous writer on historical and other subjects. Among his published works are: *First Steps in English Literature* (1870); *Kings, Queens and Barbarians* (1871); *The Story of Rome* (1886); *The Story of the Saracens* (1887); *The Discovery and Exploration of America* (1887); *The Colonization of America* (1887); and *The Making of the American Nation* (1887). He also edited the works of Chaucer (1879); *The Library of Religious Poetry* (1887) and Dryden's *Palamon and Arcite* (1898). He also collaborated in many other historical writings. He was a frequent contributor to the *Atlantic* and other periodicals, and was the founder of the Gilman School.

GIPSY MOTH. See ENTOMOLOGY.

GLACIATION. See GEOLOGY.

GODWIN-AUSTEN, MT. See EXPLORATION.

GOLD. The mining of gold in the United States progressed, on the whole, satisfactorily

in 1909. There was a marked recovery from the depressed conditions of the two years immediately preceding and the general advance resulted in the development of proved mines and districts. Although these improvements resulted in a generally increased production of the base metals and as a consequence, augmented the gold output, they did not detract seriously from those gold mining operations which had benefited during the late panic by the closing of numerous copper, lead and zinc mines and the consequent release of skilled labor for gold mining. The tables below show the gold production of the United States by States for the year 1908-9. The figures for 1909 are from the preliminary estimates of the Director of the Mint:

PRODUCT OF GOLD IN THE UNITED STATES,
1908 AND 1909.

State or Territory	1908 Quantity	Value
Alabama	1,993	\$ 41,200
Alaska	960,669	19,858,800
Arizona	120,937	2,500,000
California	935,074	19,329,700
Colorado	1,106,385	22,871,000
Georgia	2,719	56,200
Idaho	69,829	1,443,500
Illinois		
Michigan		
Missouri		
Montana	152,865	3,160,000
Nevada	565,475	11,689,400
New Hampshire	179	3,700
New Mexico	14,817	306,300
North Carolina	4,716	97,500
Oregon	43,823	905,900
Philippine Islands	13,763	284,500
Porto Rico	29	600
South Carolina	2,598	53,700
South Dakota	374,529	7,742,200
Tennessee	179	3,700
Texas	24	500
Utah	190,922	3,946,700
Virginia	174	3,600
Washington	12,273	253,700
Wyoming	368	7,600
Total	4,574,340	\$94,560,000

State or Territory	1909 Quantity	Value
Alabama	1,355	\$ 28,000
Alaska	1,013,340	20,947,600
Arizona	129,273	2,672,300
California	1,029,000	21,271,300
Colorado	1,062,056	21,954,700
Georgia	2,141	44,300
Idaho	67,207	1,389,300
Illinois	14	300
Michigan		
Missouri		200
Montana	174,183	3,599,400
Nevada	721,195	15,908,400
New Mexico	13,464	278,300
North Carolina	1,557	32,200
Oregon	34,488	712,900
Philippine Islands	9,000	186,100
Porto Rico	30	600
South Carolina	169	3,500
South Dakota	331,363	6,849,900
Tennessee	179	3,700
Texas	18	400
Utah	185,993	3,844,800
Virginia	175	3,600
Washington	18,282	377,900
Wyoming	184	3,800
Other States	5,744	118,700
Total	4,800,359	\$99,232,200

From this it will be seen that the output of gold for 1909 reached the unprecedented value

of \$99,232,200, an estimated increase of \$4,672,200 over the value of the product of 1908. Although the gold mining industry was generally progressive in 1909 the increased production resulted chiefly from operations in six States and territories and the preliminary figures of the Director of the Mint would indicate a decrease in actual production from fourteen others. The most notable increase in production was that in Nevada, where the preliminary figures indicate a gain of \$3,219,000, and where mining was active, particularly at Goldfield and Tonopah. The next largest increase, \$1,941,600, is indicated in California, where lode mining has been continuously productive and where dredging for gold has been of growing importance. For Alaska an increase of \$1,088,800 is indicated, and Montana and Arizona show gains in production, partly due to the greatly increased copper output. On the other hand, a decrease of \$916,300 is indicated at Colorado, chiefly at Cripple Creek, where the production will not greatly increase until the completion of the Roosevelt deep drainage tunnel. A decrease of \$892,300 is shown in South Dakota, where the great Homestake mine was closed from November 23, 1909, owing to labor troubles.

According to estimates from the United States Bureau of Statistics the United States imported in 1909 gold valued at \$13,510,513 in foreign ore, \$26,238,368 in foreign bullion, and \$6,059,313 in foreign coin, and exported gold valued at \$498,822 in domestic ore, \$43,021,545 in domestic bullion, \$86,803,265 in United States coin and \$2,717,725 in foreign coin, the excess of exports over imports thus being \$87,238,323. In 1908 there was an excess of exports over imports valued at \$30,939,163. The imports in 1909 were made up chiefly of ore and bullion from Mexico and to a smaller degree from Canada and South America. The exports consisted largely of coin, and went chiefly to South America, though large amounts of gold were sent to Japan, the United Kingdom and France.

WORLD PRODUCTION. The gold production of the world, as estimated by the *Engineering and Mining Journal* at the close of 1909, was in that year \$457,567,280. The table given below shows the world's production in 1908-9 from various countries according to figures of the same authority.

GOLD PRODUCTION OF THE WORLD IN DOLLARS

Country	1908	1909
Transvaal	\$145,819,016	\$151,900,000
United States	94,560,000	96,500,000
Australia	73,314,671	71,980,780
Russia	30,944,561	34,160,000
Mexico	24,518,548	26,000,000
Rhodesia	12,276,394	12,605,000
British India	10,424,067	10,566,500
Canada	9,559,274	10,750,000
China, Japan and Korea	10,618,850	11,000,000
West Africa	5,773,544	4,625,000
Madagascar	1,136,850	2,480,000
Other countries	24,488,752	25,000,000
Total	\$443,434,527	\$457,567,280

It will be noted that the estimates for the United States are considerably smaller than the estimates made by the Director of the Mint in the table above. The total increase in the world's production in 1909 as compared with

1908 was \$14,132,753, or 3.2. The larger gains came from the Transvaal, Russia and Mexico. Australia alone of the prominent producing countries showed a decreased output.

GOLD COAST. A British Crown colony and protectorate on the western coast of Africa, with a coast line of about 350 miles and an inland extension of about 440. Area, including Ashanti and the Northern Territories, estimated at 119,260 square miles. Population (1906), 1,696,965; of the colony, 895,350. The European population in 1908 is given at 1768. The natives are nearly all pagans, but Mohammedanism and Christianity are on the increase. Accra, the administrative centre, has 17,892 inhabitants. There are government and mission schools. The native State of Ashanti, lying inland, is administered by a chief commissioner (capital, Kumasi; population 6642). The territories north of Ashanti in the hinterland, a separate district under a commissioner, are known as the Northern Territories. The soil of the entire country is extremely fertile. Rubber, cacao, timber, palm-oil and palm-kernels are the staple products. Gold is found in considerable quantities. The total imports and exports in 1907 were £2,366,195 (Great Britain, £1,758,315) and £2,641,674 (Great Britain, £1,954,626) respectively; in 1908, £2,029,446 (Great Britain, £1,476,130) and £2,525,170 (Great Britain, £1,952,395). The principal articles of import were textiles, spirits and hardware; of exports (1908), gold, £1,151,944; cacao, £540,821; rubber, £168,144; palm-oil, £129,535; palm-kernels, £77,821. The government railway from Sekondi through Tarkwa, the centre of the gold mining industry, to Kumasi (168 miles), is completed and open to traffic. Another railway from Accra into the interior is under construction. There are 1280 miles of telegraph line and 46 offices. The total revenue and expenditure for 1908 were £752,141 and £392,072 respectively, against £708,718 and £617,124 in 1907. The colony is administered by a governor (in 1909, Sir J. P. Rodger), who is also governor in Ashanti, which, however, is not under the laws and ordinances of the Gold Coast. The governor is assisted by an executive and a legislative council.

GOLF. The national championship tournament in 1909 was won by R. A. Gardner, who defeated H. Chandler Egan 4 up and 2 to play at Wheaton, Ill. Miss Dorothy Campbell, of North Berwick, Scotland, won the woman's championship, the runner up being Mrs. R. H. Barlow. The fifteenth annual open championship tournament of the United States Association was held over the Englewood, N. J., course and resulted in a victory for George Sargent, who covered the course in 290, a new record. Thomas McNamara finished second and Alexander Smith third. Other prominent tournaments held in the United States during the year, and the winners in each total: New Jersey, State, Max Behr; Metropolitan Open, Alexander Smith; Western Open, W. Anderson; Western Amateur, Charles Evans, Jr.; Middle Atlantic States, J. Davidson, and Eastern Professional, Alexander Smith.

Jerome D. Travers, the national champion in 1908, entered the English Amateur Championship tournament at Muirfield, England, but failed to reach the finals. T. J. Stevenson, another American, met a like fate. The tourna-

ment was won by Robert Maxwell. The English Open Championship went to J. H. Taylor, who also won the French Open Championship by defeating J. Braid by 1 up. The English woman's championship was won by Miss Dorothy Campbell, who also won the American woman's championship. Miss Campbell, however, lost the Scotch woman's championship to Miss E. Kyle.

The Intercollegiate Golf Association Team Championship again went to Yale, which team defeated Harvard in the final match over the Apawamis course. The individual championship was won by A. Seckel, of Princeton, who defeated H. Legg, of Yale, 6 up and 4 to play. In England, Oxford defeated Cambridge 6 matches to 2.

GOMEZ, JOSÉ MIGUEL, President of Cuba. See CUBA.

GOODE, JOHN. An American lawyer, public official and writer, died July 14, 1909. He was born in Bedford county, Va., in 1829, and graduated from Emory and Henry College in 1848. He studied law and was admitted to the bar in 1851. In the same year he took a seat in the Virginia House of Delegates. He was one of the most ardent advocates of secession, and was elected the representative of Virginia to the Confederate Congress. He served in the Civil War as a volunteer. After the war he was a member of the Democratic conventions of 1868 and 1872. He was appointed a member of the joint American and Chilean claims commission by President Cleveland. From May, 1885, to August, 1886, he was Solicitor-General of the United States. He wrote *Recollections of a Lifetime*, and a series of articles on Confederate leaders. As an orator he was widely known throughout the South.

GOODRICH, CASPAR FREDERICK. An American rear-admiral, retired from active service in April, 1909. He was born in Philadelphia in 1847, and graduated from the United States Naval Academy in 1864. He served in the Civil War in 1864-5. In 1869 he was made lieutenant-commander, in 1884 commander, and in 1897 captain. During the Spanish-American War he commanded the *St. Louis* and the *Newark*. In 1903-4 he was commandant of the Navy Yard at Portsmouth, and in 1905-6 commanded the Pacific Squadron. On June 1, 1907, he was made commandant of the New York Navy Yard, which position he held on his retirement. He was made rear-admiral in 1904.

GOODSELL, DANIEL AYRES. An American bishop of the Methodist Episcopal Church, died December 5, 1909. He was born at Newburg, N. Y., in 1840, and graduated from the University of the City of New York in 1859. In the same year he entered the ministry of the Methodist Episcopal Church. From 1880 to 1888 he was literary editor of the *Christian Advocate*. In the latter year he became Secretary of the Board of Education of the Methodist Episcopal Church and was made a bishop. In his official capacity he visited China, Japan, Korea, Italy, Bulgaria, Switzerland, Germany, Scandinavia, and Finland. He was one of the two editors of the *Discipline* of the Methodist Church. He was at one time pastor of the New York Avenue Methodist Episcopal Church, Brooklyn, and had parishes in New Haven and Meriden, Conn. He was appointed Resident Bishop in Boston, and in 1908 was made Resi-

dent Bishop in the Methodist Episcopal Church, New York City. He was chairman of the commission which produced the Hymnal now in use in the Methodist Church. Bishop Goodsell wrote on scientific as well as religious matters. He left a fine collection of marine fossils and geological specimens. Among his published works are *Nature and Character at Granite Bay* (1901); and *Things Which Remain* (1904). He contributed also to reviews and periodicals.

GORDIN, JACOB M. A Hebrew playwright, died June 11, 1909. He was born in the province of Poltava, Russia, in 1853. He taught school in his native country and then became a writer for a Russian paper in Odessa. His editorials attracted wide notice, and his political influence became considerable. He founded a society called the Bible Brotherhood, which was more ethical than political, but in 1891, when the press censorship became more rigid, Gordin was compelled to leave Russia. He arrived in New York, ignorant of English or of Yiddish, but he soon became proficient in the latter language, and began to write plays for the Yiddish theatres. He wrote over 100 of these, some of them possessing strong dramatic qualities. He also introduced the plays of Ibsen, Gorky, Sudermann and Hauptmann to the East Side of New York. His *Kreutzer Sonata* was translated into English, and was produced in the United States and England. Among his other plays are *The Unknown*, *Homeless*, *Democratic Americans*, *The Truth*, *God*, *Man* and *the Devil*, and *True Power*. Gordin took an active part in the efforts to better the conditions among the poorer Jews in New York, and was one of the founders of the Educational Alliance.

GOTTSCHALL, RUDOLF VON. A German novelist, poet and critic, died on March 21, 1909. He was born at Breslau in 1823, and studied at Königsberg, Breslau and Berlin. His first poems, published anonymously in 1842, were *Lieder der Gegenwart*. His earliest plays were *Ulrich von Hutton* and *Maximilian Robespierre* (1848), and these were followed by *Lambertine, von Mericourt* (1850) and *Ferdinand von Schill* (1851). These were followed by many other plays, novels, and volumes of criticism. Gottschall was one of the most voluminous writers of his generation, and many of his productions were widely read.

GRADUATE SCHOOL OF AGRICULTURE. See AGRICULTURE.

GRAFT PROSECUTIONS. See CALIFORNIA and PENNSYLVANIA.

GRAND RIVER BRIDGE. See BRIDGES.

GREAT BRITAIN. The United Kingdom of Great Britain (England, Scotland and Wales) and Ireland is a constitutional monarchy. Capital, London.

AREA AND POPULATION. The area in square miles and the population, according to the census of April 1, 1901, and the estimate of June 30, 1909, are stated as follows:

	Area	Population
	1901	1909
England and Wales..	58,324	32,527,843
Scotland	30,405	4,472,103
Ireland	32,360	4,458,775
Isle of Man	227	54,752
Channel Islands	76	95,618
Army, navy and merchant seamen abroad		367,736
Total	121,391	41,976,927
		45,208,421

The 1909 estimate is exclusive of army, navy, and merchant seamen abroad, but includes the Isle of Man and the Channel Islands. The decennial rate of increase, as shown by the 1901 census, is: England, 12.1 per cent.; Wales, 13.3; Scotland, 11.1; the Islands, 1.9; Ireland, a decrease of 5.2. The movement of the population was as follows in 1908:

	England and Wales	Scotland	Ireland
Births	942,611	131,337	102,426
Deaths	521,644	77,839	77,151
Marriages	264,647	81,588	22,831

In 1907 the birth-rate, death-rate, and marriage-rate per 1000 inhabitants were 26.3, 15, and 15.8 respectively in England and Wales; 27, 16.2, and 13.9 in Scotland; 23.2, 17.7, and 10.1 in Ireland. Births, deaths, and marriages for the United Kingdom of Great Britain and Ireland are reported as follows:

Births			
Year	Number	Rate	
1895.....	1,154,898	29.4	
1906.....	1,170,622	26.8	
1907.....	1,148,573	26.0	
1908.....	1,176,374	26.4	
Marriages			
	Number	Rate	
1895.....	279,746	14.3	
1906.....	326,842	14.9	
1907.....	332,190	15.1	
1908.....	319,061	14.3	
Deaths			
	Number	Rate	
1895.....	735,244	18.7	
1906.....	681,343	15.6	
1907.....	678,822	15.4	
1908.....	676,634	15.2	

The following shows the immigration:

Year	British and Irish	Foreigners	Not dis- tinguished	Total
1906....	130,446	95,264	4,435	230,165
1907....	160,588	129,183	3,862	293,633
1908....	172,043	170,879	.....	342,922

Emigration (British and Irish) has been: 1906, 325,137; 1907, 395,680; 1908, 263,199. The principal destinations of British and Irish emigrants have been:

	Brit. No. America	United States	Austral- asia	South Africa
1906....	114,859	144,817	19,331	22,804
1907....	151,216	170,264	24,767	20,925
1908....	81,321	96,869	33,569	19,568

In 1908 English emigrants numbered 176,986; Scotch, 42,273; Irish, 38,352; British colonials, 5588; total, 263,199; foreigners, 123,212; grand total, 386,411. In 1907 the grand total was 634,949.

The estimated population of the larger cities at the middle of 1908 was: London, 4,795,757; Glasgow, 859,715; Liverpool, 753,203; Manchester, 649,251; Birmingham, 558,357; Leeds, 477,107; Sheffield, 463,222; Dublin (with suburbs), 394,525; Belfast, 380,344; Bristol, 372,785;

Edinburgh, 350,524; West Ham, 315,000; Bradford, 292,136; Newcastle-on-Tyne, 277,257; Hull, 271,137; Nottingham, 280,449; Leicester, 240,172; Salford, 239,294; Portsmouth, 211,493; Cardiff, 191,446; Bolton, 185,358; Aberdeen, 178,210; Dundee, 168,616; Croydon, 157,698; Sunderland, 157,693; Willesden, 154,792; Oldham, 142,507; Blackburn, 135,961; Rhondda, 133,137; Brighton, 129,967; Gateshead, 128,393.

EDUCATION. Illiteracy has decreased remarkably. In 1843, 32.7 per cent. of males and 49 per cent. of females signing the marriage registers in England and Wales signed by mark; in 1907, 1.4 per cent. males and 1.7 per cent. females. In Ireland, in 1907, 8 per cent. of the males and 6 per cent. of the females signed by mark; in Scotland, in 1906, 1.45 per cent. males and 1.97 per cent. females. Elementary instruction is compulsory in England, Scotland, and Wales.

In 1908 the number of public elementary schools in England was 18,766, with accommodation for 6,550,087 pupils, an enrollment of 5,984,130, and an average attendance of 4,908,880. Of the schools, 6318 were Council schools (maintained at public expense), with accommodation of 3,338,031 pupils and an average attendance of 2,655,585; and 12,448 were voluntary schools (maintained by religious denominations), with accommodation for 3,171,056 and an average attendance of 2,253,295. In Wales the elementary schools numbered 1794, with accommodation for 511,931 pupils and an average attendance of 373,575; 1090 of the schools were Council, with accommodation for 378,993 and average attendance of 268,897, and 704 were voluntary, with accommodation for 133,138 and average attendance of 86,678. In England (1908) certificated teachers numbered 28,585 men and 56,931 women; in Wales, 2519 men and 2896 women. There is a steady increase in the number of certificated teachers. In 1908 there were also in England and Wales 39 higher elementary schools, with 446 teachers, accommodation for 12,471 pupils, and an average attendance of 9909. In 1908 there were in England and Wales 840 public secondary schools, 6874 evening (continuation) schools, 193 day technical classes, 37 technical institutions, 225 schools of art, and 40 art classes, besides schools for the blind, deaf, etc. For the training of teachers there were in 1908 72 training colleges and 23 hostels in England, and 7 and 4 in Wales.

In Scotland there were in 1908 3143 elementary schools, with an enrollment, 792,418 pupils, and 160 higher grade schools, with 19,928 pupils; in addition there were 939 evening schools, with 87,599 pupils, 754 continuation classes, with 101,664 pupils.

In Ireland there were in 1908 8468 elementary schools, with 12,731 teachers and 689,001 pupils enrolled. Seven training colleges for teachers had 521 men and 663 women students.

In 1907 the total payments for public elementary education in England and Wales amounted to £21,194,003, of which Parliamentary grants represented £11,380,784 and local rates £9,491,703; in Scotland the sums expended from Parliamentary grants in 1907 and 1908 amounted to £1,860,711 and £1,941,918 respectively; in Ireland, from Parliamentary grants and rates, £1,454,185 in 1907 and £1,470,347 in 1908.

Besides the public schools there are many private institutions of all grades, for which statistics are not available. The institutions for higher education include the universities of Oxford (1249 A.D.), Cambridge (1257), Durham (1831), London (1836), Manchester (1850), Birmingham (1900), Liverpool (1903), Leeds (1904), Sheffield (1905), and Bristol (1909); the University of Wales; the universities of St. Andrews (1411 A.D.), Glasgow (1450), Aberdeen (1494), and Edinburgh (1582); and Dublin University.

AGRICULTURE. Coincident with the extension of public instruction in Great Britain, and the development of great manufacturing industries, the area of land under cultivation has grown smaller from year to year. In 1909 the cultivated area was nearly 1,500,000 acres less than ten years before; in 1861 about 4,000,000 acres were sown to wheat, and in 1909 about 1,823,000 acres. The decrease has been chiefly in England and Wales, there being practically no change in Scotland. There has also been a conspicuous shrinkage in the number of small holdings—that is, farms of 50 acres or less—and it is contended that only through a large increase of such farms can any real betterment of English agriculture be brought about. See **AGRICULTURE**.

Of Great Britain's total land area—56,211,830 acres—14,795,517 acres were under crop and 17,415,869 acres under uncultivated grass in 1908; in 1909, 14,730,668 and 17,452,405 respectively (figures for 1909 provisional). The acreage and production of the principal crops in Great Britain are reported as follows:

Crop	Area		Production	
	1908	1909	1908	1909
	<i>Acres.</i>	<i>Acres.</i>	<i>Bushels.*</i>	<i>Bushels.*</i>
Wheat.....	36,677	43,606	1,394,000	1,754,000
Barley.....	154,596	163,100	7,134,000	8,540,000
Oats.....	1,060,301	1,035,735	63,839,000	67,894,800
Rye.....	8,050	7,463	235,000	251,000
Beans.....	1,794	1,627	72,000	73,000
Peas.....	297	263	7,400	7,800
Potatoes.....	587,144	579,799	†119,455,000	†119,372,000

* Bushels of weight: Wheat, beans, peas, and potatoes, 60 pounds; rye, 56 pounds; barley, 48 pounds; oats, 33 pounds. † Yield of sound tubers.

MINING AND METALS. In 1908 the number of persons in the United Kingdom engaged in mineral production was: At 3211 coal mines, 972,232 (including 5970 females); at 848 metaliferous mines, 45,508 (including 255 females); at quarries, 85,475. The value of the principal mineral produce of the United Kingdom in 1907 is reported at £135,279,088, as against £105,842,992 in 1906. Of the 1907 total, minerals valued at £89,710,565 were produced in England, £25,341,479 in Wales, £19,955,974 in Scotland, £215,660 in Ireland, and £55,410 in the Isle of Man. Metallic minerals were valued at £5,773,487 and non-metallic at £129,505,601. The value of the metals produced from British ores in 1907 is reported at £20,528,417, as against £19,166,644 in 1906. The principal metallic minerals raised in 1907 included the following: Iron ore, 15,731,604 tons, valued at £4,433,418, and contain-

Crop	Area harvested			Production			Average yield per acre.	
	1907	1908	1909 *	1907	1908	1909 *	1908	1909 *
	<i>Acres.</i>	<i>Acres.</i>	<i>Acres.</i>	<i>Bush. †</i>	<i>Bush. †</i>	<i>Bush. †</i>	<i>Bush. †</i>	<i>Bush. †</i>
Wheat	1,625,445	1,626,733	1,823,492	55,208,195	54,191,000	63,499,000	33.3	34.8
Barley	1,712,094	1,667,437	1,664,394	60,370,180	56,445,000	62,889,000	33.9	37.8
Oats	8,122,898	5,108,844	2,981,852	134,392,119	127,523,000	127,060,000	41.0	42.6
Beans	509,730	293,228	311,806	10,629,041	9,122,000	0,219,000	51.1	29.6
Peas	166,136	154,598	169,983	4,756,616	4,494,000	4,540,000	29.1	26.7
Potatoes		562,105	575,461		146,258,000	157,357,000	260.2	258.5
				<i>Long tons.</i>	<i>Long tons.</i>	<i>Long tons.</i>	<i>Long tons.</i>	<i>Long tons.</i>
Hay, from clover, sainfoin, etc		2,232,333	2,035,827		3,506,784	2,936,177	1.57	1.44
Hay, from permanent grass		4,948,950	4,776,694		6,213,355	5,432,360	1.26	1.14
Turnips and swedes		1,550,897	1,555,542	22,085,718	23,768,235	25,132,427	15.3	16.2
Mangolds		427,772	456,496	8,936,929	8,995,287	9,565,523	21.0	21.0

* Preliminary estimates. † Winchester bushels, except for potatoes; potatoes, bushels of 60 pounds.

In 1908 and 1909 hops were grown on 38,921 and 32,539 acres respectively in Great Britain; vetches or tares, 126,083 and 136,245; rape, 86,495 and 87,443; cabbage, 69,120 and 66,854; alfalfa, 65,156 and 65,327; small fruits, 84,880 and 87,116; under orchard were 250,297 acres in 1908 and 257,336 acres in 1909.

The number of live-stock in Great Britain in 1908 and 1909 is reported as follows: Horses used for agricultural purposes, 1,119,324 and 1,132,014 respectively; unbroken horses, 426,347 and 420,979; cattle, 6,905,134 and 7,020,982; sheep, 27,119,730 and 27,618,419; swine, 2,823,482 and 2,380,887. In Ireland in 1908: Horses, 604,629; mules, 30,351; asses, 241,133; cattle, 4,792,458; sheep, 4,126,106; swine, 1,217,840; goats, 246,286; poultry, 24,031,095.

In Ireland the acreage and production of the principal crops in 1908 and 1909 are stated as follows (1909 figures provisional):

ing 5,126,949 tons of metal, valued at £19,004,413; lead ore, 32,533 tons, £419,247, containing 24,460 tons of metal, £479,722; tin ore, 7080 tons, £706,700, containing 4407 tons of metal, £769,438; zinc ore, 20,082 tons, £100,533, containing 7600 tons of metal, £183,612; copper ore, 6525 tons, £21,253, containing 666 tons of ore, £62,673. The principal non-metallic minerals raised in 1907 were: Coal, 267,830,962 tons, valued at £120,527,378; clays, £1,850,387; sandstone, 5,012,053 tons, £1,397,285; limestone, 12,509,142 tons, £1,323,624; slate, 443,554 tons, £1,178,609; granite, etc., 5,674,470 tons, £1,158,951. Of the coal output in 1907, 187,386,517 tons were raised in England, 40,252,193 in Wales, 40,092,542 in Scotland, and 99,704 in Ireland. In 1907, in 369 blast furnaces, 25,123,759 tons of iron ore were smelted, producing 10,114,281 tons of pig iron.

FISHERIES. The catch in 1908 was valued at

£10,897,841, against £11,686,674 in 1907. In 1908 the value of the catch credited to England and Wales was £8,032,984 (including shellfish, £293,650); Scotland, £2,585,731 (shell-fish, £74,239); Ireland £279,126 (shell-fish, £17,521).

in 1909 there was less industrial confusion by reason of strikes, boycotts, and lockouts than in 1908.

COMMERCE. Imports and exports of merchandise have been valued as follows:

Year	Total imports	Exports	
		Domestic	Foreign and colonial
1905.....	£565,019,917	£329,816,614	£77,779,913
1906.....	607,888,500	375,575,338	85,102,480
1907.....	646,807,942	426,035,083	91,942,084
1908.....	592,953,487	377,103,824	79,623,697
			Total exports
			£407,596,527
			460,677,818
			517,977,167
			456,727,521

Figures for the total trade for three years, including reexports of merchandise and showing the values of specie and bullion are as follows:

Imports:	1906		
	1906	1907	1908
Merchandise	£ 607,888,500	£ 645,807,942	£ 592,953,487
Specie and bullion	63,306,653	73,072,439	56,472,203
Total	£ 671,195,153	£ 718,880,381	£ 649,425,690
Exports:	1906		
	1906	1907	1908
Merchandise	£ 460,677,818	£ 517,977,167	£ 456,727,521
Specie and bullion	61,482,652	67,786,858	63,252,987
Total	£ 522,160,370	£ 585,764,025	£ 519,980,508

MANUFACTURES. The textile industry of the United Kingdom employs a capital estimated at £250,000,000. On March 1, 1909, the number of cotton spindles in operation was placed at 53,471,897 (United States second with 27,846,000), with 1,467,388 in construction. For 1908 the mill consumption of cotton is reported at 1,726,000,000 pounds; wool, 652,000,000 pounds; flax and tow, 228,000,000 pounds.

Great Britain, and especially England, is pre-eminently a manufacturing country. Textiles constitute the leading production, but in virtually all branches of manufacture large amounts of capital are invested. Recent statistics, definite and comprehensive, of the various manufacturing reëports of merchandise and showing importance of British manufactures may be seen in the section on *Commerce*, which shows the export values.

INDUSTRIAL DEPRESSION. From 1904 to 1907 wages manifested an upward tendency. Statistics covering the period from April 1, 1908, to July 1, 1909, show a steady fall in wages, with an increasing number of workers out of employment, and toward the end of the year the tendency appeared to be still downward. In the calendar year 1908 the wages of 464,000 industrial workers were reduced, while only 119,000 received an increase. Of the persons receiving an increase, 57,000 were government or municipal employees, 12,000 were textile workers, 11,000 were employed in the printing and allied trades, and 9000 in the building trades. Of those receiving diminished wages, 83,500 were employed in the engineering and shipbuilding trades, 69,000 in the manufacture of pig iron and iron and steel, and 283,000 in coal mining. In the first six months of 1909, 1,081,273 persons (846,750 employed in coal mines) suffered a decline in wages, against 6439 who received an increase. With a few exceptions, as employees in the printing and clothing trades and government and municipal employees, British industrial wage-earners were receiving smaller compensation on July 1, 1909, than on the same date in 1908. It should be noted that

The share of each division of the United Kingdom in total imports and domestic exports has been as follows, in thousands of pounds sterling:

Year	England and Wales	
	Imports	Exports
1905.....	£511,294	£292,834
1906.....	550,024	334,805
1907.....	585,721	377,230
Year	Scotland	
	Imports	Exports
1905.....	£41,332	£36,099
1906.....	44,941	39,987
1907.....	44,976	47,419
Year	Ireland	
	Imports	Exports
1905.....	£12,394	£ 884
1906.....	12,924	783
1907.....	15,110	1,385

The imports and domestic exports of merchandise in 1907 and 1908 are classified on page 312.

Reëports of merchandise (that is, exports of foreign and colonial produce), classified according to this table, showed the following totals in 1908: Class I., £10,879,356; class II., £45,310,088; class III., £25,254,963; class IV., £179,290; total £79,623,697. The principal articles of import and of domestic export, not specified in the foregoing trade, were valued as follows in 1908: Imports: Wheat, £38,295,327; butter, £24,080,912; oil (exclusive of petroleum), £21,852,256; sugar, £20,003,427 (refined £12,985,787; unrefined, £7,817,640); bacon and hams, £17,565,248; fruits, £14,071,833 (fresh, £10,955,829; dried, etc., £3,116,004); silk manufactures, £11,621,609; tea, £10,734,415; copper, £10,427,547; corn, £10,388,061; fresh beef, £10,276,957; rubber, £8,370,905; fresh mutton, £8,140,029; iron and steel, £7,681,512; eggs, £7,183,112; wheat flour, £7,075,231; cheese, £6,684,203; petroleum, £6,662,711; barley, £6,113,945. Exports: Cotton piece goods, £70,227,516 (unbleached, £19,970,594; bleached,

Merchandise	Imports		Domestic Exports	
	1907	1908	1907	1908
I. Food, drink, and tobacco:				
Grain and flour	£75,409,156	£72,788,334	£3,089,165	£3,552,913
Meat, including animals for food	51,888,213	49,448,334	1,309,218	1,052,701
Other food and drink			17,068,769	15,962,044
1. Non-dutiable	67,460,829	68,576,894		
2. Dutiable	48,317,166	48,908,374		
Tobacco	4,215,888	5,167,133	1,909,498	1,309,994
Total	247,290,596	244,134,089	22,729,648	21,987,051
II. Raw materials and articles mainly unmanufactured:				
Coal, coke and patent fuel	90,845	4,699	42,118,994	41,615,923
Iron ore, scrap iron and steel	7,859,649	4,974,723	578,449	418,349
Other metallic ores	10,128,192	8,901,105	189,685	71,777
Wood and timber	27,093,054	24,506,199	111,841	98,218
Cotton	70,803,498	53,854,883		
Wool	36,459,810	30,746,990	3,207,904	2,662,151
Other textile materials	18,011,524	18,698,178	227,397	245,471
Oil-seeds, nuts, oils, fats, and gums	80,697,416	28,514,067	5,429,748	5,091,825
Hides and undressed skins	10,752,783	9,498,965	1,817,317	1,424,760
Materials for paper making	4,863,997	4,810,997	788,001	845,977
Miscellaneous	25,904,304	25,459,351	2,373,845	2,215,048
Total	241,594,172	203,455,017	55,003,081	52,382,499
III. Articles wholly or mainly manufactured:				
Iron and steel and manufactures thereof	7,215,177	7,681,512	46,563,861	37,406,028
Other metals and manufactures thereof	28,932,812	24,659,603	11,674,181	8,856,472
Cutlery, hardware, implements, and instruments	4,072,372	3,750,177	6,434,002	5,492,463
Telegraph cables and other electrical goods	1,247,650	1,968,769	9,469,977	1,945,104
Machinery	5,311,681	4,552,604	81,743,253	80,999,516
Ships (new)	77,015	18,199	10,018,113	10,567,475
Manufactures of wool and timber	1,920,716	1,407,917	1,407,917	1,256,805
Yarns and textile fabrics:				
1. Cotton	9,525,775	9,475,793	110,437,092	65,055,518
2. Wool	10,789,759	9,500,036	54,158,837	28,591,922
3. Other materials	20,741,024	18,959,087	16,503,896	12,410,049
Apparel	5,616,971	4,200,819	9,561,648	8,852,775
Chemicals, drugs, dyes, and colors	11,629,978	10,185,617	17,052,755	16,271,069
Leather and manufactures thereof	11,530,663	11,562,700	4,559,037	5,836,258
Earthenware and glass	4,052,434	3,685,330	4,048,893	3,700,037
Paper	5,673,887	5,798,665	2,344,230	2,314,967
Miscellaneous	28,271,097	25,840,435	83,048,127	29,610,943
Total	154,538,991	145,085,597	342,925,273	296,955,416
IV. Miscellaneous and unclassified (including parcels post).	2,864,185	2,278,784	6,277,081	5,828,298
Total	645,807,942	592,953,487	436,035,083	377,103,824

£18,838,345; dyed, £18,019,433; printed, £13,399,144; coal, etc., £41,615,923; cotton yarn, £12,844,700; linen manufactures, £5,799,198; fish, £4,604,048; cotton thread, £4,342,492; cotton lace, £3,856,422.

Of the total trade in merchandise, imports from foreign countries in 1907 and 1909 were valued at £488,670,888 and £463,125,429 respectively, and imports from British possessions £157,137,054 and £129,828,058 respectively; exports (including re-exports) to foreign countries, £370,523,080 and £321,060,854 respectively, and exports to British possessions £147,454,081 and £135,666,667 respectively. The relative importance of the trade by countries in 1907 and 1908 is shown in the table in the next column; the figures indicate millions of pounds sterling and represent total imports and total exports of merchandise.

SHIPPING. The total net tonnage, with cargo and in ballast, entered and cleared (exclusive of the coasting trade) at ports of the United Kingdom in 1907 and 1908 was as follows:

	British	Foreign	Total
Entered			
1907	40,415,618	25,828,295	66,240,913
1908	38,889,588	26,579,469	65,469,057
Cleared			
1907	40,892,824	26,137,983	67,030,807
1908	39,980,184	25,996,955	65,977,139

Countries	Imports from		Exports to	
	1907	1908	1907	1908
United States	133.7	124.1	58.0	42.5
France	52.8	48.0	33.5	31.7
Germany	38.8	38.0	56.7	46.3
Netherlands	36.8	36.3	19.0	15.8
Argentina	26.5	35.7	18.3	16.9
British India	43.9	29.6	53.3	50.8
Australia	33.8	29.0	27.1	25.6
Russia	31.4	28.1	19.1	20.5
Canada	28.0	26.2	19.2	14.2
Belgium	28.3	25.1	19.4	17.1
Denmark	18.5	19.6	6.3	5.3
Egypt	22.2	17.5	10.2	9.8
New Zealand	17.8	14.6	9.4	9.6
Spain	16.8	13.3	5.9	5.7
Sweden	11.1	10.3	7.9	7.2
Straits Settlements	9.0	7.9	4.0	3.4
Chile	6.0	7.3	7.8	4.1
Brazil	9.7	6.9	10.6	8.4
Norway	6.6	6.5	4.9	4.4
Cape Colony	16.1	6.0	10.6	8.8
Ceylon .....	...	5.1	...	1.8
Italy	3.9	3.4	15.3	16.0
Rumania	5.1	3.3	...	2.0
China	3.5	3.0	12.1	9.2
Japan	3.2	2.9	12.3	10.1

The foreign shipping is principally German, Norwegian, Danish, Swedish, Dutch, and French. Of the total tonnage entered in 1908, 63,210,390 represented steamers; cleared, 63,765,357. The tonnage entire in the coasting trade in 1908 was 58,779,484 (54,742,454 British); cleared, 58,096,812 (54,222,986 British). On December 31, 1908, the merchant marine consisted of 11,026 steamers, of 10,139,000 tons, and 9542 sailing

vessels, of 1,403,000 tons; total, 21,168 vessels, of 11,542,000 tons. On the same date the total merchant marine of the British colonies consisted of 17,440 vessels, of 1,722,000 tons (17,440,000 steam).

COMMUNICATIONS. On December 31, 1907, there were open to traffic 15,897 miles of railway in England and Wales, 3849 in Scotland, and 3362 in Ireland. The total length in the United Kingdom on December 31, 1908, was 23,205 miles, representing an aggregate paid-up capital of £1,310,533,212. The following figures, for the year 1908, relate to all the railways of the United Kingdom: Passengers carried (exclusive of season-ticket holders), 1,278,115,488; total traffic receipts, £110,552,833; working expenses, £76,407,801; net traffic receipts, £43,486,526. Length of state telegraph lines in 1908, 57,193 miles; of wire, 462,463 miles; offices, 10,862; other telegraph offices, 2487; post-offices, 27,728.

JOINT-STOCK COMPANIES AND BANKS. On April 30, 1909, there were on the register in the United Kingdom 46,474 joint-stock companies, with a paid-up capital of £2,163,132,789. At the end of 1908 post-office savings banks had 11,618,251 accounts open and £160,648,212 deposited; and trustees' savings banks, 1,788,033 accounts open, and £51,715,950 deposits. The amount passing through the Bankers' Clearing-House, London, in 1908, was £12,120,362,000, against £12,730,393 in 1907.

FINANCE. The unit of value is the sovereign, or pound sterling, worth \$4.8665. Ordinary revenue and expenditure for fiscal years ending March 31 have been as follows:

	1907	1908	1909
Revenue....	£144,814,073	£156,537,689	£151,578,295
Expenditure	139,415,251	151,812,094	152,292,395

For the fiscal year 1910, the estimated ordinary revenue and expenditure were £162,840,000 and £162,469,000 respectively. In the fiscal year 1909, the sources of ordinary revenue were as follows: Customs, £29,200,000; excise, £33,650,000; estate, etc., duties, £18,370,000; stamps, £7,770,000; land tax, £730,000; house duty, £1,000,000; property and income tax, £33,930,000; total Exchequer receipts from taxes, £125,550,000; post-office, £17,770,000; telegraph service, £3,020,000; telephone service, £1,510,000; crown lands, £530,000; receipts from Suez Canal shares and sundry loans, £1,171,476; miscellaneous, £2,026,829; total Exchequer receipts of non-tax revenue, £26,028,000;—total Exchequer revenue, £151,578,295. The classification of ordinary expenditures was: National debt, £28,000,000 (interest, etc., £18,011,000; repayment of capital, £9,989,000); civil list, £470,000; annuities and pensions, £271,790; salaries and allowances, £77,736; courts of justice, £519,293; miscellaneous services, £331,288; payments to local taxation accounts, £9,824,286; total consolidated fund services, £39,493,394;—Army, £26,840,000; navy, £32,188,000; civil services, £30,228,000; old-age pensions, £2,110,000; customs and inland revenue, £3,320,000; post-office revenues, £18,113,000; total supply services, £112,799,000;—total expenditure, £152,292,395. Including bank balances and various receipts and payments not classified as ordinary, the receipts and issues of the Exchequer in the fiscal year 1909 balanced at £205,137,275.

On March 31, 1909, the gross debt stood at £754,121,309, against £759,826,051 the year before. Against the gross debt must be set assets (including £32,667,000 in Suez Canal shares) and Exchequer balances amounting, March 31, 1909, to £43,510,589; so that the net debt on that date stood at £710,610,720. The net debt on March 31, 1910, is computed to stand at about £702,688,000.

NAVY. The larger vessels of the effective navy were as follows in 1909:—First-class battleships: 2 of 11,800 tons each; 6 of 12,950 tons; 5 of 14,000 tons; 9 of 14,900 tons; 8 of 15,000 tons; 8 of 16,350 tons; 2 of 16,500 tons; 1 of 17,900 tons (*Dreadnought*); 3 of 18,600 tons;—second-class battleships: 2 of 10,500 tons each; 2 of 11,940 tons; 1 of 12,350 tons; 8 of 14,150 tons;—first-class armored cruisers: 10 of 9800 tons each; 6 of 10,850 tons; 6 of 12,000 tons; 6 of 13,550 tons; 4 of 14,100 tons; 3 of 14,600 tons; 3 of 17,250 tons. In 1909 there were building 3 first-class battleships of 19,250 tons each, one of 20,250 tons, 2 of 21,000 tons, and there was authorized one of 21,000 tons. The number and displacement of effective warships, built and building, of 1000 or more tons, and of torpedo craft of 50 or more tons, were as follows in 1909: Battleships of 10,000 tons and over: 60, of 41,450 tons; armored cruisers, 40, of 506,350 tons; cruisers over 6000 tons, 18, of 176,250 tons; cruisers 6000 to 3000 tons, 48 of 214,700 tons; cruisers 3000 to 1000 tons, 24, of 51,675 tons; torpedo-boat destroyers, 168, of 81,356 tons; torpedo-boats, 69, of 15,014 tons; submarines, 67, of 19,078 tons; total, 494 war vessels, aggregating 2,005,873 tons, giving to the British navy first place among the navies of the world. (See *NAVAL PROGRESS*.) The naval expenditure during the ten-year period ending March 31, 1910, is stated at \$1,595,505,000.

ARMY. The British army, as a result of the reorganization following the passage of the "Territorial and Reserve Forces Act" in 1908, is organized in two lines: A Regular Army with its Reserve and Special Reserve, the latter corresponding to the old militia; and the Territorial Forces formed from the Yeomanry and Volunteers as they existed when the reorganization took place. The first line furnishes the garrisons for India, Egypt, South Africa, and other places, and maintains at home sufficient troops to supply drafts for those serving abroad. Furthermore in the first line are always maintained at home sufficient troops to constitute an Expeditionary Force which would be brought up to war strength by the Reserve. The Special Reserve is designed to make good the war losses in this first line. The Second Line is concerned chiefly with home defense, but it is expected that in case of hostilities trained men will volunteer for foreign service. Service in the Regular Army is by voluntary enlistment for a term of 12 years, part of which, as specified below, is served with the colors and the remainder with the Reserve. The prescribed terms of active service are: Cavalry, 7 years; Royal Horse Artillery and Royal Field Artillery, 6 years (5000 for 3 years); Royal Garrison Artillery, 8 years; Foot Guards and Line Infantry, 7 years; Royal Engineers, 7 years. On completing these periods of service a soldier serving abroad is liable to be retained with the colors for a period not exceeding one year. According to the Army estimates of 1909-10, the strength of the establishment of the Regular Army, including

India, as compared with the previous year was as follows:

	1909-10	1908-9
Cavalry	20,110	20,192
Royal Artillery	48,659	49,019
Royal Engineers	9,793	9,561
Infantry	149,797	151,534
Army Service Corps	6,806	6,811
Army Medical Corps	4,963	4,969
Colonial and Native Indian Corps	8,604	8,451
Departmental Corps	2,982	2,984
Excess Numbers	1,300	1,700
Total	253,004	255,221

In addition there were: Permanent Staff of the Territorial force, 2813; Staff and Departments, 1926; and miscellaneous establishments, 1466, making the grand total voted 183,200, exclusive of the army in India. The army estimates for 1909-10 gave the distribution of the total establishments as follows: Home, 133,259; Colonies, Egypt, etc., 45,057; India, 76,009; Total, 254,325.

The expeditionary force mentioned would consist of 5665 officers and 161,630 men, which could be readily mobilized for any service. Of this, 4992 officers and 61,977 men would be drawn from the regular peace establishment, including reserve officers, while the reserve would furnish 85,023 men. From the special reserve and from the Territorial force would be drawn a non-regular contingent amounting to 757 officers and 7350 men and 7272 men respectively.

The recruitment of the Territorial force was very active in 1909 and much enthusiasm was manifested, a recruiting march through the city of London on May 15 leading directly to the enlistment of 600 men. Training camps were held at many places and considerable progress was reported. The army estimates for 1909-10 gave the establishment of the Territorial force as below, to which are appended figures for the strength on January 1, 1909:

	Establishment	Strength
Cavalry	26,545	23,347
Artillery	47,073	31,773
Engineers	15,607	11,075
Infantry	201,807	128,584
Army Service Corps	9,013	5,731
Medical Corps	15,485	9,413
Veterinary Service	210	77
Total	315,740	210,000

On October 1, 1909, the establishment of the Territorial force was given as 11,267 officers and 302,047 men, while the strength on the same date was 9650 officers and 260,404 men. The Territorial force may be compared with the former Volunteer force, which in the three years previous to its disbandment in 1908, had enrolled the following strength: 1905, 249,611; 1906, 255,854; and 1907, 250,786.

The general staff was further reorganized by an order in council of September 20, 1909, and was divided into two main groups or divisions, the first concerned with general staff duties at the War Office and the second consisting of officers distributed in commands and districts to assist in every way in promoting general military efficiency as well as with certain prescribed duties. By Royal warrant of October 29, 1909, a reorganization of the financial system of the

army was arranged to take place on January 1, 1910, and the pay services and cash accounting of the army commands were taken over by the Army Pay Corps, the Army Accounts Department losing some of its importance.

During 1909 a number of important steps attending the reorganization of the previous years were taken. In order to solidify the mobilization and administration of the expeditionary force, as well as its training in time of peace, a gradual redistribution of peace stations was made. Improvements were made in the scheme of small arms practice and a new bayonet, as well as improved accoutrements, was issued. A more powerful field howitzer was issued to the artillery and a reorganization of the system of cavalry depots and remounts was brought about, so that not only would there be six cavalry depots for the reception and instruction of recruits, but these would be the bases of the formation of fourteen reserve cavalry regiments. A remount system somewhat similar to that of Germany was introduced and a number of changes were effected in the artillery as regards its organization. The expeditionary force was of course the main object in these various phases of reorganization, as it was designed to represent a complete and fully organized army in readiness for action, not the maximum organization towards which the nation was aiming. Therefore attention was also paid to the Special Reserve, in large part favored by the militiamen, who during 1908 and 1909 took transfer to the new branch. This branch was designed to make good the wastage of the first six months of a war. Progress was made in the development of the Territorial force, though naturally there was considerable crudeness in the organization and in the personnel, but a marked improvement over the previous year was to be noted, the various county associations and the officers and recruits manifesting considerable interest in the work. The staff and divisional organization was in progress of organization, with regular or ex-regular officers as commanders and principal staff officers. Manœuvres were held during the summer at Salisbury Plain and Aldershot, two yeomanry brigades being assembled at the former place, and a Territorial division at the latter. The formation of various reserves of officers was also prosecuted during the year, the General Reserve and the Special Reserve being formally organized and provision made for small allowances to them. An officers' training corps, though not forming a part of the army, was evolved out of the cadet corps and university corps, and was arranged to be officially supervised by the general staff at the War Office.

The army estimates gave the following total strength of officers and men in the regimental establishment of the Army, Army Reserve, Special Reserves, and Territorial Forces, all ranks. (See next page).

The army estimates for 1909-10 amounted to £27,435,000, or a decrease of £24,000 as compared with 1908-9 (£27,459,000).

GOVERNMENT. The executive authority is vested in the King, acting through his ministers. The legislative power devolves upon the Parliament, a body of two chambers, the House of Lords and the House of Commons. The latter consists of 670 elected members. The King in 1909 was Edward VII., who was born November 9, 1841, and ascended the throne

	Establishments 1909-10	1908-9	Effectives Jan. 1, '09
Regular Forces (Regimental), Home and Colonial (including Regular Establishment of Special Reserves).....	168,391	170,615	168,252
Colonial and Native Indian Corps.....	8,604	8,451	8,050
Army Reserve.....	137,000	142,000	134,110
Special Reserves (excluding Regular Establishment).....	90,664	80,301	67,780
Militia, United Kingdom.....	.....	.....	1,154
" Reserve Division.....	1,650	2,000	1,704
" Channel Islands.....	3,163	3,163	2,984
" Malta, Bermuda and Bermuda Volunteers.....	2,862	2,862	2,660
Territorial Force.....	315,716	314,063	209,977
Isle of Man Volunteers.....	126	.....	.....
Officers' Training Corps (Officers and Permanent Staff).....	788	.....	418
Total Home and Colonial Establishments.....	728,964	723,455	603,517
Regular Forces (Regimental) on Indian Establishment.....	76,059	76,155	76,590
Total.....	804,973	799,610	680,107

January 22, 1901. The heir apparent is George, Prince of Wales, born June 3, 1865. At the end of 1909 those of the King's ministers who form the Cabinet (formed April, 1908) were as follows: Prime Minister and First Lord of the Treasury, Herbert Henry Asquith; Lord High Chancellor, Lord Loreburn; Lord President of the Council, Viscount Wolverhampton; Lord Privy Seal, Earl of Crewe; First Lord of the Admiralty, Reginald McKenna;—Secretaries of State: for Home Affairs, Herbert John Gladstone; Foreign Affairs, Sir Edward Grey; Colonies, Earl of Crewe; War, Richard Burdon Haldane; India, Viscount Morley of Blackburn;—Chancellor of the Exchequer, David Lloyd-George; Secretary for Scotland, Lord Pentland; Chief Secretary to the Lord Lieutenant of Ireland, Augustine Birrell; Postmaster-General, Sydney Buxton;—Presidents of committees of the Council: Board of Trade, Winston Spencer Churchill; Local Government Board, John Burns; Board of Agriculture, Earl Carrington; Board of Education, Walter Runciman;—Chancellor of the Duchy of Lancaster, Herbert Samuel; First Commissioner of Works, Lewis Vernon Harcourt.

HISTORY

INTRODUCTION. The Parliamentary crisis at the close of the year 1909 marked the end of four years of Liberal rule. In January, 1906, the Liberals for the first time in twenty years came into power with an effective majority, for, although there was a Liberal government from 1892 to 1895, its majority was precarious, depending wholly on the Irish vote. The programme on which it assumed power in 1906 comprised the following policies: The exclusion of Chinese labor from the Transvaal, the amendment of the Licensing and Education acts, the maintenance of free trade, and the carrying out of a thorough-going plan of industrial and social legislation. In the last-named field it achieved in 1906 the passage of the Trades Disputes act, which established the principle that any act lawful for an individual was also lawful for a combination and which legalized picketing and gave immunity to trade union funds; the passage of the Workmen's Compensation act, amending the existing law and extending compensation for injuries to many new classes; and the passage of measures for improving the system of reporting accidents in the industries, securing the better treatment of crews on board ships, etc. In 1907 was passed the Small Holdings act, designed for the purpose of facilitating the purchase or lease of

lands for small holdings and allotments, which went into effect on January 1, 1908. Another achievement of the Liberal government in 1907 was the settlement at the close of that year of the impending strike on the British railways through the efforts of Mr. Lloyd-George, then president of the Board of Trade. He established conciliation boards to decide on questions of wages, hours, etc., between the masters and the men. The plan was adopted by many of the railroads and worked successfully. In 1908 the Port of London act created a port authority which should purchase and henceforth manage the London docks. Among other measures of that year were the law establishing an eight-hour day in the coal mines, and the Children's act, creating a juvenile court and containing many other clauses, all looking to the prevention of cruelty to children and the better provision for their health and safety; but the chief measure in the field of social and industrial legislation was the Old Age Pensions act of 1908, by which all persons of 70 and over, with the exception of lunatics, criminals, aliens and those benefiting under the Poor Law Relief, are entitled to a pension of 5 s. (\$1.25) a week if their incomes do not exceed \$157.50 a year. (See OLD AGE PENSIONS.) In 1909 legislation of this same class comprised a Labor Exchanges act, a Trade Boards act Housing and Town-Planning act, Development act, and other measures, which will be noted in the following paragraphs. As to the exclusion of the Chinese labor from South Africa, the Liberal policy was successfully carried out, and by the close of 1909 very few of the Chinese laborers were left in the Rand.

On the other hand, the Liberals failed to carry through the two leading features of their programme. The Education bills of 1906 and 1908 were alike unsuccessful, and the Licensing bill of 1908 was also rejected. A large part of the Liberal energies had been concentrated on these unsuccessful measures, which, down to the beginning of 1909, were the chief matters of Parliamentary discussion. In education the Liberals aimed at popular control of rate-aided schools and the abolition of religious tests for teachers. As to the liquor traffic they sought to assert the principle of State supremacy. The rejection by the House of Lords of these and other measures of social and industrial reform led to much sharp discussion and to Liberal demands for curtailment of the powers of the Upper House. Such in brief was the record of the first three years of Liberal rule. In the account that follows, the budget dispute, lead-

ing as it did to the dissolution of Parliament and the great political contest at the close of 1909 on the eve of the general election, will be treated first, and the other events of the year will be given in succeeding paragraphs.

THE BUDGET. By far the most important issues in internal politics during the year were raised by the Budget. The Chancellor of the Exchequer, Mr. Lloyd-George, introduced the Budget with a speech on April 29. The deficit amounted to about £16,500,000. This was due first to the cost of the social legislation which had gone into effect or would be proposed. The Old Age Pension law, which had passed in 1908 and had brought relief to a great majority of the indigent persons over 70 years of age, had introduced a serious item of expense, which had to be met out of ordinary revenue, for it was a permanent charge; and it would involve heavier expense after two years, when the persons assisted under the Poor Law would be eligible to pensions. Other social legislation contemplated by the government included a trade boards bill, designed to put an end to the abuses in the sweated industries; a bill for the creation of labor exchanges to bring employers and employees together; a plan for workmen's insurance; a measure for afforestation and for the encouragement of agriculture. The Opposition in general did not attack these expenditures, although a number of economists were opposed to old age pensions and to certain of the Budget measures. The point at issue was the means of raising the revenue. In the opinion of the Conservatives the basis of the new taxation should be tariff reform, especially a protective system, or at least one that afforded the groundwork for a new fiscal policy. Their chief argument hitherto had been that the maximum returns had been reached under the present free trade system, and that any further increase of revenue could be secured only by means of import duties. Mr. Lloyd-George's taxation scheme was a defiance of this protectionist argument. Without departing from the system of free trade, it found new sources of revenue either by new taxes or by an increase in the present taxes. It would block the protectionist programme effectually if, without unduly burdening the taxpayers, revenues could be raised to meet the deficit without recourse to customs duties. Much of the bitterness in the discussion of the Budget was due to this cause, as well as to the fact that the proposals seemed socialistic and in certain cases to discriminate against classes. The essential point, according to Liberal interpretation, was the removal of social injustice. On the Conservative side the principle of indirect taxation was upheld and the tendency toward state socialism in the Liberal proposals was condemned. The means of raising revenue proposed by Mr. Lloyd-George may be summarized as follows: First, as to the matter of debt reduction. During the last three years the Liberal government had succeeded in reducing the public debt with great rapidity, and it was feared that this reduction, in view of the present deficit, would be suspended, but the Chancellor of the Exchequer's plan withdrew only a small portion from the funds that were to be applied to debt reduction, namely, £3,000,000 (subsequently £3,500,000). This would reduce the amount to be made good by a new taxation from £16,

500,000 to £13,500,000. The revenues for meeting this balance of the deficit were to be obtained from three sources of taxation: The luxuries of the masses, excess of wealth, and monopoly. These included increased duties on spirits and tobacco, the former being expected to raise £1,800,000 and the latter £1,900,000. The dealers immediately put up the price on spirits and tobacco sufficiently not only to equal the tax but to yield a profit. As to the taxation of property, the income tax on all unearned incomes and on all incomes over £3000 was increased and a super-tax was levied on all incomes of more than £5000. The estimated increase from the income tax for 1909-10 was £3,000,000, and from the super-tax £500,000. Increased succession duties were levied on great fortunes. The existing duties brought in £18,600,000; those proposed were estimated to yield £2,850,000; in addition, estates of £5000 or less were to pay no more than before, but a more rapidly progressive tax was imposed on estates between £5000 and £1,000,000, reaching the maximum figure of 15 per cent. for the latter. As to monopolies the government proposed to increase greatly the price for liquor licenses, raising their yield by £2,600,000. The principle of this increase was the same as that underlying the Licensing bill which was rejected by the House of Lords in 1908, that is to say, the principle that the license to sell liquor is not a permanent property right, but a privilege that can be taken away at will by the state. By inserting this clause in the Budget it became a fiscal measure and could not be rejected by the Lords without raising a constitutional question.

Another very important and critical point was the tax on land values. Here, too, the Lords had shown hostility. There was proposed first a valuation of the selling price of all lands, and on this basis four taxes were planned: First, a tax on increment value, that is, the increase in the site value which the land has acquired; second, a tax on the site value of undeveloped land; third, a reversion tax on benefits accruing to the lessor on the termination of a lease; fourth, a tax on mineral rights, which was substituted for the government's earlier proposal of a tax on "ungotten minerals." The revised estimate of the yield from these four sources was only £600,000, but it was evident that the increment taxes would grow more productive as time went on. These were the chief objects of the Opposition's attack. The Government was accused of discriminating against the land, and the Opposition, representing largely the wealthy classes, saw in this plan a design to shift the burdens of taxation from the producing classes to the possessors of wealth. Mr. Lloyd-George's proposals were fully supported by the Government. The above items were the chief ones, but the proposals also included increased stamp duties. The following table recapitulates these items and the amounts which they were expected to yield, according to the revised estimates of October:

From the debt reduction fund.....	£3,500,000
Increased duty on spirits.....	800,000
Increased duty on tobacco.....	1,900,000
Super-tax and increased income tax...	3,200,000
Increased succession duty.....	4,150,000
Increased price of liquor licenses.....	2,100,000
Land duties	600,000
Increased stamp duty	900,000

In the debate that immediately followed the presentation of the Budget on May 3 and 4 the Opposition denounced the abolition of the sinking fund, saying that it would lead to extravagance. They declared that the tax on vacant lands would harass the people who wished to sell them, that the principle of the unearned increment was unsound, that the new taxes imposed on the rich were likely to drive capital out of England, that the new income tax would be evaded and was inquisitorial; that the government was laying a heavy burden on English beer, but not on foreign beer. As to the charge that it was attacking landed property and inclining to socialism, the Government replied that it was idle to call a tax on the unearned increment revolutionary, for the policy was actually applied in many Continental centres and with success, and that the Conservatives, if they came to power, would be sure to adopt the new taxes to which they were now objecting. Moreover, if capital should be driven out the government asked to what country could it fly, for all countries at the present time were hard pressed in the matter of raising revenues and were levying heavy taxes.

In the Commons the resolution authorizing the new license duties in the Finance bill was carried on May 10. By this brewers would pay only two and three-fourths d. per barrel. The Government in reply to criticism that this bore heavily on industry said that already liquor dealers were preparing to charge £20,000,000 to meet a levy of only £4,000,000. The duties on imported beer were allowed on May 11, and at the same time the excise duty of 3d. on the pound for liquor sold in clubs. Among the specific objections advanced against the details of the Finance bill, the following may be mentioned: The land tax was criticised as invidious. It was said that there was no reason for taxing land differently from any other kind of property. The tax on "ungotten minerals" was mercilessly ridiculed, and after a time this was withdrawn by the government. The increase of the income tax on incomes of over £5000 was condemned as preparing the way for an intolerable extension. To questions raised in regard to stamp duties the Government replied that the charge was less than in any other country in Europe. It had been said against them that they doubled the duties on transfer of property. The estate duty, the increased settlement duty and the other death duties were carried in the House of Commons on May 20, and a few days later the customs duty and additional excise on spirits, the increased excise on tobacco, the duty on motor spirits, the increased duties on licenses, and the provisions as to land valuation were also carried. In the debate on June 7 the Budget was attacked for introducing oppressive confiscation, raising more money than was needed, violating the principle of taxation for revenue only, distributing the burden unfairly between Ireland and Scotland, imperiling the interests of certain classes and trades, for example hotel keepers, restaurant keepers, distillers, landowners, small cultivators, insurance companies, friendly societies which had invested in mortgages and ground rents, tradesmen and working people who had invested in small house properties, men interested in land development near towns, etc. The measure was condemned as socialistic and the real authors were said to

be Mr. Snowden and the Labor party. The general defense was that it found money without adding to the duties on the necessities of life and that it taxed superfluities. It was denied that capital would leave the country on account of these impositions. It was admitted that it was a blow at fiscal form and it was frankly approved as a triumph of free trade. The Opposition's amendment for the rejection of the measure was lost by 366 to 209. In place of the clause taxing "ungotten minerals," the Premier announced on August 11 that the Government offered a duty of five per cent. on mineral rents. The objections to the death duties were brought out in a debate in September. The chief complaint was that they were paid out of capital and would greatly complicate settlements. The super-tax of 6d. per pound on incomes of over £5000 was condemned by some for its discrimination against a small class, but Mr. Balfour declared that by comparison with the other features of the Government programme it was not objectionable. This at least came out of income, he said, whereas the death duties came out of capital. The only proper measure was a tax on imports, but as the Government would not consent to this, he did not think the super-tax a bad alternative. The Government was also criticised for its inroad on the sinking fund, and this criticism was renewed when Mr. Asquith on October 29 moved a further reduction of £500,000 beyond the £3,000,000 already demanded. When criticised for not judging the amount more nearly in the first place, he said that he had expected from the beginning that he might require even a million in addition, but that less was necessary owing to the greater yield from the death duties than had been expected. From whiskey, on the contrary, less was returned than had been anticipated. This was due to the fact that people were curtailing their consumption. In general the Government was blamed for extravagance. Despite their promises of economy they had raised expenses in four years from £151,750,000 to £162,500,000.

DEBATES ON THE FINANCE BILL. The bill was in the committee stage from June 21 to October 6. A great many important modifications were then introduced by the Government. The debates on this important measure during the month of November down to the day when Lord Lansdowne moved its rejection in the Lords, thus raising one of the most serious issues in the Parliamentary history of the country for many years, may be briefly summarized. On November 4, Mr. Redmond, as spokesman for the Nationalist party, announced that although the members of his party favored the land taxes, they were strongly opposed to the license duties and the increase of the whiskey duty. They intended therefore to abstain from voting in the coming election. They would not, however, support the action of the Lords in the impending constitutional crisis. Much as they objected to these measures, they considered the Budget a less serious evil than the threatened disruption of the constitution through the action of the Lords. The Chancellor of the Exchequer made a temperate speech on this occasion in which he congratulated the House on having put through to its present stage so complex a measure and without having had recourse to closure. The main

point, he said, was that the Government faced a deficit of over £16,000,000 this year and would need more money next year. The Opposition had objected to every tax that would bring in money. They favored, he believed, a tax on the foreigner, but that was the most foolish of all suggestions that had been made. He declared that in the present Budget his party had provided revenue for objects that would insure the security of the State and the well-being of the people and by means that would remove the burdens from industry and promote the prosperity of every class. Mr. Balfour declared that this was not the proper time for the discussion of tariff reform, but that he wished to make one point clear: The Opposition firmly believed that the great difference between the Government proposals and tariff reform was that while the former was mischievous, the latter would benefit the whole community, and especially the working classes. He denied the charge that tariff reform would throw upon the working classes burdens which would otherwise be borne by the rich. The main objection to the Budget was not the taxes which it levied on the rich, but the arbitrary selection of the kind of property to be taxed. The Chancellor declared in effect to one man that although he had £5000 a year he would be let off, but to another man having exactly the same income, but drawn from a different kind of property, that he must pay a special contribution. This was an indefensible system. The Budget was socialistic, said Mr. Balfour, inasmuch as it struck at the security of property. "We hold that for an industrial community with numerous rivals around us it is madness to tamper, as the present Government are doing, with the rights of property. The Government are destroying confidence, and with confidence they are destroying enterprise and initiative. . . . They are making it more difficult for this country to engage with success in the great industrial fight which is going to be the great question of modern national politics." Mr. Asquith, the Premier, declared that the Opposition were "battling with ghosts and fighting shadows of their own creation." He made light of the familiar bugbear that the taxes would drive out capital. The Opposition desired a tariff which would place the burden upon the necessities of life. The Government scheme taxed values which came from monopolies and were not the fruit of individual exertions. The bill would be carried by an overwhelming majority of the House of Commons, which was the sole constitutional authority in matters of national finance. The greater issue would then arise as to the continued supremacy of that House in view of the threatened action of the House of Lords. It was known at this time that the bill would be rejected by the upper House on the ground that they ought not to pass a measure of this nature until the country had been consulted. On November 16, Lord Lansdowne gave notice in the upper House that he would introduce a motion to this effect when the bill came up for a second reading. As the crisis approached, important speeches were made outside Parliament by the leading men of both parties, including Lord Rosebery, Mr. Balfour, Mr. Asquith, Mr. Churchill, Mr. Lloyd-George, and many others. The final debate began in the House of Lords on Monday, No-

vember 22, when the motion for the rejection of the Budget was introduced.

This day's session is the most important in the history of Parliament since the rejection of the Home Rule bill of 1893; and there were but two other Parliamentary crises to be compared with it in a period of nearly eighty years, namely, the Reform bill of 1831 and the Representation of the People bill of 1884. The House was crowded and there was every sign that the importance of the issue was fully appreciated. There was, however, little excitement and the proceedings went on with a deliberation and dignity that contrasted with the bustle which characterized the lower House on similar occasions. Lord Crewe, on behalf of the government, merely moved that the bill be read a second time. Lord Lansdowne thereupon introduced the motion, "That this House is not justified in giving its consent to the bill until it has been submitted to the judgment of the country." In his speech on behalf of the motion he advanced the following arguments: The attitude of the House of Lords was that they could not undertake the responsibility of consenting to the bill until they knew that it was the wish of the people that it should become a law. Apparently the government supporters wished the bill to be put through without debate, as if it were a non-contentious matter of ordinary departmental routine. He was not aware of any authority that prevented the House of Lords from amending or rejecting the bill, and he challenged its supporters to cite any such authority. The course of the House of Lords was unusual, but this was an unusual Budget. It was not to be expected that the House of Lords would dispense with their constitutional privilege. The right of the House of Lords to reject a finance bill was recognized in the resolution passed by the House of Commons in 1689 and it existed to-day. The House of Commons itself was guilty of a new departure in its practice of tacking to finance bills all sorts of measures for the purpose of forcing them through. The present bill was a jumble of financial proposals and the House of Lords was told that it could not change a single word in it. It was told that it could not deal with the question of land valuation because it was included in a finance bill. Yet the competence of the House of Lords in this matter was shown by their rejecting the Scottish Land Valuation bill of 1907. In 1908 the Lords rejected the Licensing bill. The present bill cynically put forth proposals based on the very principle which the Lords had denied. If the House of Commons could graft on the Finance bill a Licensing bill and a Valuation bill, what would prevent their grafting also a Home Rule bill? Under the circumstances it was the clear duty of the Lords not to decide on the final overthrow of the bill, but to insist that before it became a law the opinion of the voters should be taken upon it. In regard to the income tax he wished to know what had become of the reserve upon which the Chancellor of the Exchequer relied for national needs, and in regard to the death duties, he said that they went far beyond the point at which they endangered the home and family fortunes. He condemned the licensing proposals as bad finance, as well as bad temperance policy. Interminable litigation would result from the land tax and

valuation clauses and the State would be involved in wholesale land-jobbing transactions. He characterized the land taxes as unjust and unproductive, as taxing the people on what they did not have, as taxing the same people over and over again, as discriminating against a particular class, as obstructing the land market, and as based on a socialistic fallacy. As to the traditional policy of free imports, he declared that the country was falling behind other countries every day and that this isolation was increasing. He concluded by reminding the House that they were not rendering a final verdict on the bill, bad as it was.

In the Lord Chancellor's reply he made a distinction between the legal and constitutional aspect of the question, saying that while the House could reject the Finance bill under the law, it could not do so constitutionally. Such action had not been taken for centuries. In important matters the country was governed by precedent more than by law. He denied that there was anything wrong in the so-called tacking of certain measures to the Finance bill. The fact that the government had brought in a Licensing bill in 1908 was no reason why they should not increase existing laws. That was a bill dealing with a particular subject. This was a bill providing revenues for the year. Although small bills dealing with money matters might have been rejected by the Lords, they had never taken such a course in regard to bills providing for the year. Such a bill had never been touched. The Crown addressed the House of Commons alone in asking for supplies and never the House of Lords. The House of Commons always passed the money resolutions and without the authority of the Lords. The House of Commons had the power of the purse. Never before in the history of that House had they been confronted with a question resulting from the stoppage of supplies. At the present crisis the Lords were directly invading the prerogative of the Crown and the privileges of the Commons. The latter were asked to surrender the power of the purse. Such a course would transfer enormous power to the House of Lords which would hold the Government of the day in the hollow of its hands. On the one hand there had been a vast increase in wealth, on the other hand a vast increase of pauperism, unemployment, crime, and physical deterioration. The Government had done all that it could to remedy these evils. The taxes proposed tended in that direction. Other taxes would fall on the necessities of life and to these the Government was unalterably opposed. The land tax did not proceed on any new principle. Lord St. Aldwyn in 1904 had advocated a tax on land values near towns. This principle had long been recognized, not only by the Liberals, but by many of the Conservatives. If the Budget did not work well the new tax might be repealed. An appeal to the country would certainly raise a constitutional question and an issue between the two Houses. No Liberal Government would bear for another four years the sort of treatment that the present government had undergone. If the coming election failed, the struggle would only be begun and it could end only in one way.

Lord Cromer made a noteworthy speech, in which he condemned the Budget, but declared that in the present circumstances he felt con-

strained to vote against Lord Lansdowne. It was better to accept the Budget than to precipitate this constitutional issue, nor did he believe that protection was the best weapon to be used against Socialism. Other notable speeches were those of Lord Rosebery and Lord Milner on November 24. Lord Rosebery repeated the opinions which he had previously expressed and which prevented his voting for Lord Lansdowne's motion. As to the distinction which the Lord Chancellor drew between the law and the constitution, the practice of centuries in the matter of letting money pass through had not been quite unbroken. The Budget of 1894, though objectionable, passed through without opposition, but he thought that the House of Lords at that time might have had in view the particular position of the lower House. The House might reject the bill on the ground that it did not serve the interests of the country. There was one unquestionable principle of the constitution, namely, no taxation without representation. The Lords were accused of holding enormous quantities of land. This land was taxed abundantly and without a word or a vote. It was an indispensable condition to the exercise of any dormant power that the circumstances must be exceptional and that the nation must be behind it. He believed that the Budget was of vital importance and that it poisoned the sources of national supremacy, but the strength, efficiency, and power of the second Chamber was more vital. The measure before the House was exceedingly dangerous. It seemed both crude and vindictive. The Chancellor of the Exchequer had brought forward 250 amendments to it on the report stage. It had already done great damage and destroyed confidence. Vast sums formerly invested in this country were seeking investment elsewhere. Every kind of commercial enterprise was blocked. If the Lansdowne motion could refer the subject to the nation without danger of their mixing it up with other issues he would rejoice, but in a general election the question of an unreformed second Chamber would certainly be associated with all the Budget questions. This was not the best battlefield on which to risk the powers and perhaps the existence of the House. The value of the House of Lords was never greater than at present, when measures of this nature were thrust upon them. He warned the House against taking any action that would weaken its power. In rejecting the Budget they were doing what their enemies wished them to do. He was sorry with all his heart that he could not give a vote against the Budget. He would have the bill passed and then judged by its effects.

Lord Milner referred to the difficult task before the Chancellor, saying it was impossible to complete it within a single year. The accumulative wealth of the nation was not progressive; it was alarmingly stationary. It was dangerous to attack any source of revenue that had ceased to expand. The death duties were the worst feature of the Budget, but all its taxes were bad. The right method was to levy import duties. Effective speeches were also made by Lord Morley, Lord Curzon, and others. On November 30 the Lansdowne motion was carried by 350 to 75. On December 2 Mr. Asquith in the House of Commons moved: "That the action of the House of

Lords in refusing to pass into law the financial provision made by this House for the service of the year is a breach of the Constitution and a usurpation of the House of Commons." The motion was carried by 349 to 134. On the following day Parliament was prorogued. The date of dissolution was fixed on January 8, to be followed by the general elections. The leading issues in the campaign were the Budget, the veto power of the House of Lords, and, later, Home Rule. Mr. Asquith in a public declaration having committed his party to the granting to Ireland a measure of Home Rule. The contest, which was going on at the close of the year, was the most spirited as well as the most important as regards the principles at stake of all the political campaigns of recent years.

THE OPENING OF PARLIAMENT. Parliament was opened on February 16. As to foreign relations, the King's speech referred to his recent visit to Germany and the friendly feeling displayed on that occasion; to the progress toward the settlement of questions pending between the United States and Great Britain, the Newfoundland fisheries dispute, and the question of waterways (See CANADA, paragraphs on *History*); to the renewal of the arbitration agreements with France, Spain, and Italy; to the course of the government in relation to Persia, where the disturbed conditions caused anxiety and prompted the government, while observing strictly a policy of non-intervention, to interchange views with Russia as to a measure that might tend to the establishment of representative institutions and orderly government in Persia, the economic and commercial interests of Great Britain and Russia being imperiled by the present state of affairs; to the Italian earthquake and the sympathy and aid offered by British subjects to the sufferers; to the international conference in London for an agreement on questions of maritime law, whose decisions were to be submitted to Parliament for the necessary legislation to ratify the International Prize Court Convention; to the prospects of a satisfactory settlement of the Balkan question. In Imperial affairs the speech referred to the favorable reception of the Indian reform proposals and of the constitution drafted by the South African Union Convention. As to the measures that would be submitted to Parliament, these would comprise a bill embodying the Indian reform proposals, the Irish Land bill, and the Housing and Town-Planning bills; bills for establishing trade boards in sweated industries; for altering the law of elections and registration in London; for prohibiting the landing and selling of fish caught in prohibited waters adjoining Scotland; for amendments of the laws as to inebriates, the milk supply, and the hours of labor in shops, and such amendments to the Old Age Pension act as should remove inequalities of treatment.

The Report of the Poor Law Commission was announced and measures were promised for the organization of a labor market through a system of labor exchanges, and perhaps in connection with that measure other means of relieving unemployment. In the discussion that followed the Speech from the Throne the Opposition referred to the disorders in Ireland, noted in a subsequent paragraph. It attacked the government for its folly in rejecting every com-

promise in tariff matters which might secure preference for British products and characterized its course toward voluntary schools as vindictive and designed to avenge on them the failure of its education bills. Premier Asquith in reply admitted that the condition of Ireland was bad, but denied that the Government was remiss in the execution of the laws. He repudiated also the charges of financial folly and extravagance. The Labor members in the course of the discussion of unemployment held that the government plans were inadequate. The government in reply pointed to the heavy expenses that they had incurred and would incur on this account.

IRELAND. In the early part of the year the newspapers teemed with items about the "terrorism" that prevailed in Ireland, and there was sharp criticism of the Birrell administration for permitting these abuses. "Cattle driving" was still frequently reported and a number of murders and outrages occurred. Some of the newspapers went so far as to call it virtually anarchy. The "terrorism" was attributed to the "United Irish League" and its instruments, but owing to the laxity of the government, it was said, the most flagrant violations of the law went on with impunity. The government was blamed for not employing the powers conferred upon it by the act of 1887, or even properly enforcing the ordinary law. It was publicly charged in the newspapers that parts of Ireland were more dangerous to live in and in fact more barbarous than other parts of the empire, and that the government knew this, but took no measures to improve conditions. Lord Lansdowne in discussing the Speech from the Throne asked how long the reign of terror in Ireland would endure and censured the government for relying upon the ordinary law, which it knew to be inadequate. In a subsequent debate in the House of Lords boycotting was said to be so dangerous that one insurance company had refused risks to any persons against whom a boycott had been declared. No civilized country, said the Opposition, permitted such terrorism.

Mr. Birrell replied to these accusations, saying in the first place that they were greatly exaggerated. He read a detailed report on each Irish county, which indicated, as he said, that the bad conditions were merely local and not typical of the whole country. "Cattle driving" was, he said, on the decrease. The government had done all it could against it, but most of the outrages were committed by individuals and it was impossible to get evidence. Where there was unlawful assembly evidence could be had, but out of 681 cases unlawful assembly was a feature in only 100. The government was not negligent in the matter and did not palliate the crime of "cattle driving" or of boycotting. But the Crimes act of 1887 was useless for the suppression of the boycott. The difficulty lay in the detection of the criminals. Revolvers were illegally carried, but so they were in England. He favored legislation against the carrying of weapons if it applied to the whole country. As to the firing into dwelling houses, the difficulty was to catch the criminals. The government did not feel warranted in asking for exceptional powers or in enforcing the Crimes act. The trouble arose from the efforts of the

landless men, encouraged by the Land Purchase act of 1903, to get possession of untenanted lands. The Government had already retorted to the Opposition that present conditions resulted from a measure which they themselves had passed, namely, the Land Purchase act, and that the reason why they did not enforce the Crimes act was that they regarded it as a useless weapon. The Opposition continued its criticisms and in general ridiculed the Government for trying, as they said, to put down "cattle driving" under a statute of Edward III., as a result of which they could merely bind the offenders over to keep the peace. At the Irish National Convention held at Dublin on February 9, a resolution was passed declaring in favor of Home Rule and expressing confidence in the Irish party. It also resolved that the Irish language ought to be included as a necessary subject for matriculation in the Irish National University. See paragraph below, *Irish Land Bill*.

POOR LAW COMMISSION REPORT. The report of the Royal Commission on Poor Laws and the Relief of Distress, which had been sitting for a little over three years, was published on February 17. The majority report proposed the following measures of improvement: The reorganization of the administrative system by abolishing the Guardians, substituting for the union area a larger area and for the workhouse a system of classified institutions, replacing the term "Poor Law" by the term "Public Assistance," and establishing as the new responsible authority a Statutory Committee of the county or a County Borough Council, which should be helped and advised by the local Public Assistance Committee, and which was to make more effective the coöperation between voluntary and legal charities. As to existing evils and their cause and remedy, it noted among other points the following: The present educational system was defective and resulted in sending out into the community pupils who preferred clerical to manual labor, although the market for the former was already overcrowded. The schools failed to look after children over 14 years of age when they left the schools, or to do anything to prevent their swelling the numbers of the unemployed or casual workers. The problem of vagrancy was serious. Able-bodied loafers and tramps drifted in and out of the workhouse. "Detention colonies" were recommended for these idlers and for vicious persons whose families became chargeable. Although there was a decrease of three and nine-tenths per cent. in the total number of paupers between the period 1871-80 and the period 1896-1906, this was due solely to the large decrease in the number of children, and a slight reduction in the number of women, while male pauperism largely increased. Expenses rose from £8,000,000 in the former period to £14,000,000 in the latter. The administration of relief was defective.

The Report declared that workhouses tended to the deterioration of their inmates, especially children, and recommended specialization of treatment, that is, special institutions for special classes, so that the aged might have especially humane treatment, loafers might be disciplined, etc. This principle of specialization, together with individual treatment of each case and each

class of cases, were the main features of the reform proposals. The problem of unemployment was assuming more menacing proportions as the young and middle-aged tended steadily to drift into the ranks of casual labor, although skilled labor was at a premium. The workhouses have increased inefficiency; giving money without work has demoralized and employment relief has, in general, been unsuccessful. The Report commended the Salvation Army and Church Army for their work in the lower grades of the unemployed and the practically hopeless cases, and it urged that they should be so organized as to be free to give attention to individual cases. The Report declared that the Unemployed Workmen's act had failed of its object and should be discontinued. In addition to the Public Assistance authorities the Commission proposed councils of voluntary aid and committees of voluntary aid which should be recommended by the local authorities; also a great increase in the powers of the Local Government Board; also the increase of the Exchequer grant to £5,000,000, the Local Government Board to have the power to withhold the grants if the new Public Assistance authorities are inefficient. The remedies proposed included: First, Education and training; the keeping of boys at school until 15 years of age, putting them back in school if not properly employed; better means of technical education; physical drill; special means of information to boys, parents, and teachers as to opportunities of employment to be organized in connection with the labor exchange; the substitution for the present unduly literary system of elementary education a more practical one better suited to industrial life. Second, Labor exchanges: A national system was proposed. It was to be organized under the Local Government Board and maintained by it for the purpose of promoting the mobility of labor and supplying data as to employment. Third, The central government, as well as local and public authorities, should be required, so far as possible, to regularize employment and reduce casual labor. Fourth, Insurance against unemployment was recommended through the subsidization by the Government of the unemployed funds in the hands of trade organizations. The minority report, while accepting in the main the above criticisms of the present system, made certain reservations and recommended especially the establishment of a new Minister of Labor, to be responsible to the government, the "regularizing," so far as possible, of the national demand for labor by arranging a part of the ordinary work of each government department on a ten years' programme, and the adoption of new laws for compulsory reduction of hours of labor.

THE NAVAL QUESTION. One of the most discussed topics of recent years has been the subject of Imperial defense. Great alarm has been expressed from time to time over the alleged lack of readiness for war. The subject was frequently before the public in 1908 and in certain quarters the agitation assumed a somewhat hysterical form. The general public appeared not to be disturbed. Early in 1909, however, there were signs of a popular awakening on this subject. The slow recruiting of the Territorial force had often been remarked. It occasioned many warnings as to the country's military status. A great sensation was caused by the

production of Major Du Maurier's play, *An Englishman's Home*, showing the consequences of an imaginary invasion of the country by a foreign Power, presumably Germany, and public interest was also aroused by a campaign of one of the newspapers. The apathy of the public was partly dispelled. Recruiting began to go on more rapidly in February and a number of great parades aided in drawing public attention. But the main cause of alarm and the chief subject of discussion in relation to Imperial defense was the slow increase of the British navy as compared with Germany's supposed rate of naval construction. For three years the Government had tried to keep down the Naval Budget and it had hoped to do so during 1909, but in view of Germany's very extensive naval programme this was impossible. Her general plan included the laying down of a number of large vessels and three of them, which were planned for 1909, were actually laid down in the autumn of 1908. It was necessary to increase the British naval programme if it were to keep ahead of Germany. This meant of course a heavy addition to the Naval Budget. A debate on the increased navy estimates began in the House of Commons on March 16. The Government declared that the increased burden was absolutely necessary to insure Imperial safety. The total strength of the British navy in *Dreadnoughts* and *Invincibles* in 1911 would be 12 *Dreadnoughts* and 4 *Invincibles* against the 13 German battleships of the same class provided for, but the German programme, it was said, called for the laying down of four more in 1911 and thus Germany would have 17 by April, 1912; so Great Britain if it were to hold its lead must have four more ready by that date, thus making the ratio 20 to 17. Although the vessels of the other types, such as the *Lord Nelson*, *King Edward*, *Formidable*, etc., were not now obsolete, they would be in the future, and although Great Britain's armored cruisers of other types than the *Invincible* were superior to those of other navies they could not be called into the home waters in case of war. The amount that Great Britain would spend—£35,000,000—greatly exceeded the German outlay according to the German Naval Budget, but in reality the civil expenditures under the German system included important contributions to the navy. The Opposition condemned the Government's plan as inadequate. Mr. Balfour declared that the basis now was evidently a one-Power and not a two-Power standard, that it was possible for Germany to have 25 *Dreadnoughts* by April, 1912, and that she might at least have 21 on that date. The Premier, Mr. Asquith, declared that Germany should have only 16 in March, 1912, and that even if she increased her rate of building would have only 17, whereas Great Britain would at that time have 20. He emphasized the friendly relations with Germany but admitted the need of self-defense and of making the British rate of construction turn upon the German rate.

Naval estimates for 1909-10 were £35,142,700 or £2,823,200 more than the year before. The Opposition persisted in an alarmist view of the situation, declaring that while naval supremacy was safe for the present it would be hazarded in 1910 and still more so in 1911. The Government, on the other hand, continued to deprecate this alarmist spirit, declaring that there was an unpatriotic tendency to misrepresent the situation and undervalue the strength of Great Britain's navy. It dwelt upon the friendly re-

lations between the two countries, the improbability that Germany would increase her rate of building and the great preponderance of Great Britain under present conditions. The Opposition continued to press the question and finally moved a vote of censure which declared that the Government did not sufficiently provide for the safety of the empire in its naval programme. The motion was introduced on March 29. The Opposition declared that the Government ought not to be influenced by the self-interested statements of Germany as to her naval programme, and that it ought at once to provide for 8 ships of the latest *Dreadnought* type (*Neptunes*) so that there should be 16 *Dreadnoughts* by August, 1911, and 20 by December, 1911, as compared with the 13 and 17 of Germany on those respective dates. Sir Edward Grey made a moderate speech on behalf of the government which was much commented upon at the time. He said that the government should not pledge herself to the building of 8 *Neptunes*, as it was not clear that they would be necessary and moreover if they were ordered now they would reach completion no sooner than if they were ordered in July. At that time the shipbuilding vote would come up and it would be early enough to consider the matter if the Opposition saw fit to make it a party question. He said the Opposition really presented the very maximum of improbabilities. The situation was sufficiently grave without this exaggeration, for Germany would have when her navy was completed a fleet of 33 *Dreadnoughts*, the most powerful navy that the world had seen, and Great Britain to exceed that pace must rebuild her entire fleet, but the period within which this great work must be completed was uncertain. The orders must not exceed the capacities for building. Great Britain was superior to Germany in her capacity for building hulls and for manufacturing the machinery and the big guns. Her weak point was in gun-mountings, but here the Admiralty had already taken steps to secure advantage and the government felt safe. As to the relations with Germany they had begun to improve after the Algeiras Conference and this improvement was enhanced by the recent interchange of visits on the part of the King and Kaiser. The chance of peace was good and although there would be a menace in any British attempt to isolate Germany or any counter-attempt of Germany against Great Britain, he saw no risk of either. The government held that British naval construction must depend on the German rate of increase and that it must maintain the superiority of the British navy. While Great Britain would like to come to some agreement as to a naval programme with Germany, there was no denial of the fact that the British Empire's continued existence would be imperiled by German naval superiority. He declared that he accepted in good faith Germany's assurance that she should have no more than 13 *Dreadnoughts* till 1912. Germany was not bound by this declaration, but he did believe that it proved that she would not have 13 *Dreadnoughts* in December, 1910, as had been contended.

Another consideration that was very important to bear in mind was that Germany might not build vessels of the *Dreadnought* type. It enhanced the danger of ordering new vessels now. This point should be considered in connection with the four hypothetical British ships that were to be laid down later. If there were

any change in the programme Germany might hurry also. At present Great Britain had 5 *Dreadnoughts* in commission and 7 building. Four were to be laid down in 1909, thus making 16 in all. Four more might be ordered in advance without detriment to the government's next year's programme. There was no sign that the Admiralty had underestimated the seriousness of the situation, and the Government could not withdraw from the competition with Germany if Great Britain was still to count among the great nations. The vote of censure was lost by 353 against 135. Another naval debate took place on July 26, when Mr. McKenna declared that the four hypothetical ships would be laid down at the end of the fiscal year and completed by March, 1912. This had been resolved he said after careful study of the construction plans on the part of foreign powers. Of the first four vessels one was already laid down and another would be within a few days. During the last three years Great Britain had laid down 8 ships and Germany 11 and if the same comparative progress was made there would be an end to British sea supremacy in 10 or 15 years. There was no present danger, but if there were no agreement upon disarmament, for which Great Britain was always ready, British sea power would fall behind, unless the Government took some action. It would not be necessary to lay down the keels of the new vessels till April, 1910. The Opposition condemned this plan as a compromise. Mr. Balfour said that it might crowd the construction of 12 *Dreadnoughts* into the next year and that in the latter part of 1911 Great Britain would have only one more than Germany.

There was considerable discussion as to the precise meaning of the two-Power standard as employed by the Government and on May 26 Mr. Asquith defined it. He said that it did not mean strength in *Dreadnoughts* and *Invincibles* alone, but in total effective defense strength. In these respects the British navy was to be superior to any two other Powers. It was not a precise rule but a convenient one as representing the aim of British naval policy. Mr. Churchill in an address to his constituents had declared that the United States was not to be reckoned as one of the Powers in making comparison because it was not to be supposed that the United States would be found in any combination against Great Britain. In reply to a question on this point, however, Mr. Asquith said that the United States was not excluded, but referred to what he had already said as to nations so geographically situated that they could not be reckoned on the same footing in this matter as France and Germany. Among such nations were the United States and China.

REPORT OF DEFENSE COMMITTEE. In consequence of the criticism referred to in a previous paragraph of the country's lack of readiness for war a Committee on Imperial Defense was appointed in the House of Commons. The results of its deliberations were announced on July 29, by the Premier. Among the subjects discussed were the defense of India, the question of transit across the Channel, aerial navigation, the Forth and Clyde Canal and a plan for the various garrisons throughout the empire. The question of a possible invasion and its results, which had been the subject of much alarmist discussion in 1908 and was more vividly present in the public mind after the production of Du Maurier's play, was especially investigated.

The Committee reached the conclusion that even though an invasion took place when the regular forces were away it was doomed to failure so long as British naval supremacy was maintained. On the other hand the army for home defense should be of sufficient strength to repel any raids and the War Office should aim at keeping in readiness a force that could cope with an invading army of 70,000 men. A sub-committee was appointed to consider the serious criticism of the naval administration contained in a letter from Lord Charles Beresford to the Prime Minister on April 2. Lord Charles, who had completed his two years' service as commander-in-chief of the Channel Fleet on March 24, declared that the Admiralty's provisions were inadequate for the country's safety in the event of war and that the fleets in home waters were not kept in readiness for war, the deficiency in small craft and destroyers being a serious weakness, and that he could not obtain any strategical plan as to the disposal of the forces of war. The sub-committee reported that these complaints rested on no substantial ground.

IMPERIAL DEFENSE CONFERENCE. An invitation to a Conference on Imperial Defense was issued on April 30 to Australia, New Zealand, Canada, Newfoundland, Cape Colony, Natal, the Transvaal, and the Orange River Colony. It held its first meeting on July 28 and remained in session during the following month. Its official title was A Conference with the Representatives of the Self-Governing Dominions of the Naval and Military Defense of the empire. Its chief purpose in naval matters was to "determine the form in which the various dominion governments can best participate in the burden of Imperial Defense with due regard to varying political and geographical conditions." The general principle laid down by the Admiralty and accepted by the Conference was "that a dominion wishing a navy should aim to form a distinct fleet unit." The regulations concerning the training of the personnel should be similar to those of the Royal navy, and the standard of vessels and armament should be uniform to admit of interchange and union between the British and dominion services. Canada and Australia would found fleets of their own, while New Zealand would adhere for the present to the policy of contribution. As to military defense the main principle agreed upon was "that each part of the empire is willing to make its preparations on such lines as will enable it should it so desire to take its place in the general defense of the empire." Another important object sought was the interchangeability of forces between the different parts of the empire. A sub-conference on military defense recommended specifically the form that the organization and direction of the new dominion forces should assume. It declared that the war establishment of the home regular army should be the model for each dominion to follow as closely as possible. The Premier announced to the House of Commons on August 26 the plans which the Defense Conference had recommended.

THE INDIAN COUNCILS BILL. When the Indian Councils bill reached its second reading in the House of Lords on February 23, Lord Morley defined its objects as follows: It was designed to amend and extend the acts of 1861 and 1872 so as to enlarge the Governor-General's Legislative Council and the Provincial

Legislative Councils; to provide for the election by popular vote of a certain portion of the members of these Councils and for greater freedom of discussion and question, especially in financial matters; to establish executive councils in the Provinces in which they did not now exist and to reform the Councils of Madras and Bombay; and to provide for the appointment of the vice-presidents of the Councils. Lord Morley declared that he was willing to accept two of the demands of the Mohammedan element, namely, a separate electorate and a representation in the legislative councils in excess of their numerical proportion, but that he would not accept the third demand for the presence in the Viceroy's Executive Council of two natives, of whom one was to be a Mohammedan. The general tenor of such criticism as the bill encountered in the House of Lords was that it gave India parliamentary institutions before she was ready for them. After some discussion the Lords struck out clause 3 of the measure, which provided for Provincial Executive Councils (March 4), but this was restored when the measure came before the Commons. The bill was read in the Commons for the third time on April 27, and finally passed the Lords as amended in the House of Commons, after Lord Morley had offered a compromise confining the Viceroy's power to form Executive Councils in the first place to the Bengal province of the Presidency of Fort William, and requiring that, if Executive Councils were proposed for the other provinces, the proclamation creating them should be first laid on the table of both Houses for sixty days and should not go into effect if any address were made against them. The bill received the Royal assent and in November the government of India issued the orders for carrying it into effect. See INDIA, paragraphs on *History*.

TRADE BOARDS BILL. The object of the Trade Boards bill, which was to go into effect on January 1, 1910, was to put an end to the sweating system, and for this purpose it created commissions consisting equally of workmen and employers, which were to decide in connection with an arbiter upon a minimum wage for certain trades. It also contained provisions as to piece work and prescribed the penalties for not paying the required rate. The system would be extended to other trades in which the same abuses existed. The minimum wage principle was recognized in certain Australian laws which had on the whole worked out well. The bill reached its second reading in the House of Commons at the close of August, and passed both Houses in the autumn.

LABOR EXCHANGE BILL. The Government's plan for Labor Exchanges was explained on May 19. Its object was to promote mobility of labor by bringing together employers who needed workmen and workmen who needed employment. It contemplated the creation of Labor Exchange Offices in all towns. The country was formed into ten divisions, each with a clearing house, and there was also to be a central clearing house in London. Each large centre was to have a joint advisory committee, consisting of representatives of both employers and employed, under the chairmanship of an independent permanent officer. Mr. Churchill, who was the author of the plan, estimated that the cost of constructing the necessary buildings would be at first £200,000 a year and later

£170,000. He expected it to be in working order during the early months of 1910. He hoped that it would receive the support and coöperation of the trade unions. It reached its second reading in the House of Commons in June, and was soon afterwards passed by both Houses. It received the Royal assent on September 20.

PLAN FOR UNEMPLOYMENT INSURANCE. The proposals for workmen's insurance were explained to the House of Commons by Mr. Churchill on May 19. The principle involved was compulsory contribution from employers, employees and the state. It was to apply first to the three great national industries of building, engineering, and naval construction, including about 2,500,000 workmen, that is, about one-third of the workmen in the United Kingdom. Mr. Churchill estimated that in these trades occurred half and the worst half of the cases of unemployment. The trades included housebuilders, shipbuilders, tool-makers, vehicle-makers, sawyers, and in general those engaged in works of construction and engineering. The scale of benefit was on the whole lower than in the trade unions. The plan contemplated weekly payments, a little more than sixpence a week per capita being raised from the employers, workmen, and state subvention. All engaged in the trade were to contribute. The plan was generally well received and was especially pleasing to the Labor members.

HOUSING AND DEVELOPMENT BILLS. The Development and Road Improvement Funds Act was designed in general for the promotion of the economic development of the United Kingdom. It authorized the treasury to make loans and to apply the money to afforestation, the reclamation of land, agricultural improvement, rural industries, harbor improvements, canals, rural transportation, the development of fisheries, etc. It provided also for a Road Board to carry out improvements in facilities for motor traffic. The forests in England were neglected. The Crown did not possess large forests, as was the case in Germany and France, but only scattered patches. The forests were ill-cared for and kept merely for game. It was urged that certain waste tracts might readily be re-forested if the state would bear the initial expense. Another important measure that passed was Mr. Burns's Housing and Town-Planning act, which aimed to improve the conditions of workmen's dwellings. It required the local authorities to provide new means of housing when necessary, and establish a thorough system of sanitary inspection. It empowered them to purchase land compulsorily. As to town-planning, it gave the Local Government Board authority to permit the local administrations to draw up plans for the extension of towns, laying out the land or adopting the schemes proposed by the landowners. The execution of the plans, however, required the Board's approval. See SANITATION.

WELSH DISESTABLISHMENT. The plan for disestablishment of the Welsh church had been under contemplation for some time and was promised by the government. It received the united support of the Welsh representatives. The argument for it was found in the comparatively small number of communicants in the Established Church. In 1905 the Non-Conformists numbered 554,000, and provided a chapel room for 1,500,000, while the Estab-

lished Church had only 193,000 communicants, and provided chapel room for 450,000. It was proposed that on January 1, 1911, the four Welsh dioceses should be disestablished and thenceforth no Welsh bishops should sit in the House of Lords. The purposes of the Church, though no longer enforced by law, would be carried out by agreement, former members having the power to form synods and conventions for the purpose of dealing with the Church property after disestablishment. Commissioners were to be appointed to have charge of the re-arrangement of church matters under the new dispensation. Such were the leading features of the plan, but owing to the pressure of other considerations the Prime Minister announced on June 15 that the measure would be deferred to a later session.

IRISH LAND BILL. This was practically the same measure as had been brought in in the session of 1908. The Opposition had declared that a moderate measure would have their support. Mr. Birrell explained its provisions in the discussion that followed its second reading on March 20, 1909. The financial provisions for land purchase under the Act of 1903 had proved inadequate. Mr. Wyndham in framing the purchase measure had supposed that £100,000,000 would suffice, but a large part of that was already involved in pending transactions, and the outlay would probably run to not less than £183,000,000. There would probably be considerable loss on the flotation of land stock. It would not be safe to assume within the next decade that the price of issue would exceed 85. If the law were not amended an annual burden could be thrown on the ratepayer that could not be endured, and the purchase scheme would fail unless the law were amended. Under the Act of 1903 landlords received a bonus of 12 per cent. of the price. The new measure provided that the bonus should vary inversely with the number of years purchase paid. By his bill the Exchequer would assume a total capital liability of £30,000,000; landlords would be paid partly in cash and partly in stock at 92. The work of the Estates Commission was being hastened. Advances at the present time were £8,000,000 a year, and they were not likely to exceed in the future £10,000,000. It introduced the feature of compulsory sales under the Estates Commissioners and the Congested Districts Board. The Opposition objected to this compulsory feature of the measure, which they complained had been introduced in spite of the fact that the voluntary system of the Act of 1903 had been successful. Progress on the bill was slow, the details being highly technical and requiring much discussion. It was the subject of prolonged debate. It passed through its committee stage in the House of Commons on August 27 and passed the House of Lords on November 26.

LONDON ELECTIONS BILL. On November 8 the House of Lords rejected one of the government's chief measures, namely the London Elections bill, the purpose of which was to give the London electorates the same rights as those of Manchester, Liverpool, Glasgow, and other great cities, and to do away with the present system by which a man lost his vote sometimes for nearly two years by change of residence. It turned the present London constituencies into a single Parliamentary borough, in which,

however, each constituency would retain its present name and boundaries and return one member, except the City of London, which would return two members. The voting would take place on the same day and no man could vote in the same election for more than one division. It was criticised in the House of Lords as aimed against the plural voter in London alone, and as applying to London a principle which had been rejected for the country as a whole.

OTHER PARLIAMENTARY BUSINESS. A debate on tariff reform occurred in the House of Commons on February 18 and 19, when the Opposition moved a fiscal reform amendment which expressed alarm as to the present condition of trade and as to employment, and deplored the failure of the government to recognize the seriousness of the situation, and urged that measures be taken for enlarging the British market, increasing the demand for labor, lessening the rigors of foreign tariffs and developing over-sea trade between different parts of the Empire on the basis of mutual preference. On behalf of a customs tariff, it was argued that it would serve as a remedy for unemployment, that it was necessary to consolidate the trade policy of the Empire and establish an adequate preferential system with the colonies, that protection would give access to foreign markets and insure greater commercial stability. The amendment was lost by 276 to 107. The Daylight Saving bill, which had been the subject of Parliamentary discussion in 1908, was read for the second time in the House of Commons on March 5 and referred to a committee, which reported on August 24 that if enforced by law it would cause too great confusion in certain industries, but it was hoped that it might be voluntarily accepted. The report was unanimously carried. On May 2 a bill for removing what was left of the Roman Catholic disabilities was read for the second time in the House of Commons. It removed from the declaration of accession the expressions that were invidious to Catholics, remitted the penal disabilities for Roman Catholic religious orders, and opened to the Roman Catholics the offices of Chancellor of Great Britain and Lord Lieutenant of Ireland. The bill was subsequently dropped. On May 19 Lord Roberts brought in his National Service bill, which required all British subjects in the United Kingdom between the ages of 18 and 30 to serve in the Territorial Force, the period of training being four years, but the principle of compulsory service had always been opposed in Great Britain, and its outlook at the present time is not favorable. The bill was defeated in the House of Lords by a vote of 123 to 103. The South African bill (see SOUTH AFRICA, BRITISH), creating a constitution for South Africa on the basis of the Act of Union passed by the South African Union Parliament, was passed by both Houses, and on September 20 received the Royal assent. By August 20 fifteen bills had been passed, including the three already mentioned, namely, the Labor Exchange bill, the Indian Councils bill, and the South African bill, and on September 20 they received the Royal assent. The Welsh Disestablishment and certain other bills were deferred.

WOMAN SUFFRAGE. The agitation of the woman suffragists continued throughout 1909

as in 1908, and resulted in many scenes of disorder. On February 18 the woman suffragists made an attempt to enter the Downing Street offices, but were prevented by the police, and on the same night and on the following day attempts were also made to force a way into Parliament. A large number were arrested on these occasions. The attitude of the Government continued to be the same as it was in 1908. Early in February Mr. Herbert Gladstone announced to a deputation of suffragists that the Government would not introduce a separate measure for woman suffrage, but would make it a feature of the reform which it had under contemplation. On March 30 a number of women attempted to enter the House of Commons to present a petition, but were stopped by the police and eleven of them were arrested. On March 26 an anti-suffrage meeting was held under the chairmanship of Mrs. Humphry Ward, who announced that a league with about 100 branches had been formed and that a petition against woman suffrage had been presented to Parliament containing about 243,000 signatures. The Annual Congress of the International Woman's Suffrage Alliance was opened in London on April 27, representing seventeen countries. Telegrams were received from foreign countries describing the gains of the suffragists under their governments. The report from Sweden referred to the unanimous passage in the Swedish lower house of the bill for Parliamentary franchise for women, which, however, was rejected in the upper house. The report from Australia referred to the fact that 1,900,000 women there were not only qualified to vote, but for holding the highest offices, including the Premiership.

FOREIGN RELATIONS. A debate on foreign affairs occurred on July 22, in the course of which the government's policy was criticised for its over-emphasis of the sanctity of the Berlin treaty at the time of the annexation of Bosnia and Herzegovina and for its weakness in dealing with the Congo abuses. The Labor members also criticised the official welcome accorded to the Czar, referring to the barbarous methods that still prevailed in Russia, namely, the cruelties inflicted upon political prisoners and the great number of exiles sent to Siberia. Sir Edward Grey replied in general as follows: Had Great Britain taken a less decisive course at the time of the annexation it might, he said, have delayed the peaceful settlement of the issue, especially as between Turkey and the Powers which had violated the Treaty of Berlin. Although feeling ran high at one time against Great Britain in Austria, he said that now Austria had a clearer understanding of the British attitude. He explained the government's course toward Crete by its unwillingness to do anything that would embarrass the new Turkish régime. As to Belgium and the Congo he denied that the policy of the Government had weakened, but said that Belgium ought to have more time in which to make her intentions clear. The government must await the return of the Belgian Colonial Minister, who was now in the Congo, for if it pressed the matter at this time its action would seem provocative, but he declared that the government would not definitely recognize the annexation so long as forced labor was continued, and that if the same status existed at the close

of the year it would consider the means of enforcing its treaty rights. As to the Czar, the proper principle for a country to observe was non-interference in the internal affairs of another. He pointed to the fact that a constitution had been established and that the members of the Duma themselves had said during their visit to England that the people who took part in a demonstration against the Czar were wrong in thinking that it would aid the cause of liberty. The Czar's reign would after all go down in history as the period in which constitutionalism began. The House would not do anything that would divide the two countries. The Labor members, however, continued to refer bitterly to the Czar as a "monster," and they made light of the Anglo-Russian Alliance. The Czar's visit took place on August 2 and was made the occasion of many congratulatory speeches. It was thought to have had a very marked effect in strengthening the Anglo-Russian accord. King Manuel of Portugal visited England in November (see PORTUGAL, paragraph on *History*). For an account of King Edward's visit to Germany, see GERMANY, paragraphs on *History*. For other references to the relations of Great Britain with foreign countries see articles on foreign countries, especially BALKAN QUESTION, CRETE and TURKEY.

IMPERIAL PRESS CONFERENCE. Representatives from the press in the different parts of the empire met in a conference on June 5. The chief subjects of discussion were cable news, interpress communications, naval defense, military problems, etc. Its sessions closed on June 26 and were generally regarded as having done much to strengthen Imperial unity and to advance the cause of Imperial defense. One reform which resulted from it was the reduction of the Pacific Cable rates. See **TARIFF AND TRADE UNIONS**.

GREECE. A constitutional monarchy in southeastern Europe. Capital, Athens.

AREA AND POPULATION. Area, 24,973 square miles. Population in 1896, 2,433,806; in 1907, 2,631,952. Of late there has been a considerable emigration, especially to the United States. The leading cities, with population in 1907, are: Athens, 167,479; Piræus, 71,505; Patras, 37,724; Corfu, 27,397; Volo, 23,563; Larissa, 18,001; Trikkala, 17,809; Hermoupolis, 17,773; Pyrgos, 13,690; Zante, 13,580; Calamai, 13,123. Most of the inhabitants are adherents of the Greek Orthodox Church. Primary instruction is nominally compulsory between the ages of five and twelve. Illiteracy is common, 30 per cent. of the army recruits being unable to read and write. The Greek Orthodox is the State Church, but entire religious toleration prevails.

PRODUCTION. The area under cultivation is given as about 5,563,100 acres (1,112,000 under cereals, 1,200,000 fallow, 2,025,400 under forests). There are in addition 5,000,000 acres under pasture. The principal crop is currants, with an annual average yield of 150,000 tons, which far exceeds the export; the surplus is utilized in the manufacture of denatured alcohol. In 1907 the crop was estimated at 150,000 tons; the 1908 yield exceeded 170,000 tons. The olive oil yield in 1907 was 3,200,000 gallons; wine (Ionian Islands), 2,160,000 gallons. Fruits tobacco, valonea, and silk are also produced. There are 2,900,000 sheep, 360,000 cattle, and 100,000 horses.

The mineral products are various. The output in metric tons for 1907 is given as follows: Iron, 768,883; manganese iron, 92,770; magnetite, 60,248; zinc, 30,340; argentiferous lead, 13,814; chrome, 11,730; sulphur, 11,719; manganese, 11,139; gypsum, 10,580.

COMMERCE. The trade for three successive years is given in drachmas (1 drachma=19.3 cents) as follows:

	1906	1907	1908
Imports....	144,636,000	148,393,000	152,635,000
Exports....	123,526,000	116,049,000	109,244,000

The principal articles of commerce and their value in drachmas are given as follows:

Imports	Drachmas
Cereals	39,933,000
Yarns and textiles	20,499,000
Timber	9,807,000
Minerals and wrought metals.....	8,161,000
Oil	7,914,000
Chemical products	6,745,000
Fish	5,883,000
Live-stock	4,276,000
Paper	3,759,000
Hides	3,429,000
Coffee	2,910,000
Iron	2,613,000
Exports	Drachmas
Currants	44,553,000
Tobacco	8,647,000
Iron	8,149,000
Olive oil	7,402,000
Wine	7,299,000
Argentiferous lead	6,702,000
Zinc	5,753,000
Figs	4,178,000
Silk and cocoons	3,990,000
Olives	3,405,000
Valonea	1,915,000
Cognac	1,644,000

Great Britain furnished imports to the value of 31,056,000 drachmas, and received exports to the value of 32,606,000; Russia, 24,708,000 and 1,915,000; Austria-Hungary, 19,261,000 and 11,414,000; Germany, 13,792,000 and 10,813,000; Turkey, 12,784,000 and 6,168,000.

COMMUNICATIONS. The total length of railways in operation in 1906 was about 845 miles. The line from Piræus to Larissa (218 miles) is completed and open to traffic; its extension to Keralik is under construction, and if the consent of the Porte can be obtained it will continue to Gida, on the Salonika-Monastir line. There are 4951 miles of telegraph line, and 852 offices. There were 852 post-offices in 1907. The length of highways is about 3000 miles. There is a canal across the Isthmus of Corinth, but it is rarely used by foreign vessels. The vessels entering at the ports in 1907 numbered 6412 of 4,812,834 tons; cleared, 6253 of 4,814,549 tons. The merchant marine (1906) consisted of 1092 sailing vessels of 154,912 tons and 282 steamers of 276,147 tons.

FINANCE. The monetary unit is the drachma, worth one franc, or 19.3 cents. The estimated ordinary revenue and expenditure for 1908 were 136,642,784 drachmas and 134,042,556 drachmas respectively; for 1909, 129,719,358 and 126,708,010 respectively. The principal sources of revenue were estimated for 1909 as follows: Duties and excise, 54,580,000 drachmas; stamps and dues, 25,582,000; direct taxes, 22,325,000; monopolies (salt, petroleum, matches, and playing-cards), 13,085,000. The largest items of esti-

mated expenditure were: Public debt, 31,581,932 drachmas; Interior Department, 18,870,668; War Department, 18,965,260; Navy Department, 8,921,952; administration, 8,501,944; pensions, 7,508,412; worship and instruction, 7,080,808. The outstanding external gold debt on June 30, 1908, amounted to 720,361,424 drachmas; the currency debt, in December, 1907, 166,891,073 drachmas.

NAVY. The effective navy includes 3 coast-defense vessels, of 5000 tons each, and 10 torpedo boats.

ARMY. Military service is compulsory and universal between the ages of 21 and 51 in accordance with the terms of the law of 1904. About 15,000 are annually conscripted, of whom a certain number were exempted upon payment of a tax. The service is 14 months with the colors, 10 years and 10 months in the reserve, 8 years in the National Guard or Territorial Army and 10 years in its reserve. The peace organization, amounting in 1909 to 1875 officers and 20,187 men, was virtually a skeleton whose strength is fixed annually by the Chamber. The regulations provided an army of 120,000 to 130,000 on a war footing, but the officers available would not have sufficed for more than 75,000. Both organization and training were considered defective and a number of reforms were proposed. One of these eliminating princes from military commands was rendered unnecessary by their resignations. The proposed measures (see *History* below) to increase and recognize the army involved the beginning of compulsory service at the close of the 19th year instead of the 21st and permitted no exemptions. The service proposed was for active army, 2 years; first reserve 12 years; second reserve 9 years; National Guard 7 years; National Guard reserve 7 years. In this way a first reserve of over 2000 men would be formed, while the second reserve and National Guard would supply 250,000 more. The estimated annual cost was £920,000, as compared with £720,000, and a national defense fund of £140,000.

GOVERNMENT. The executive authority is vested in a king, assisted by a responsible ministry of seven members. The King in 1909 was George I., second son of the late Christian IX., of Denmark; he was born in December, 1845, and was elected King of the Hellenes by the National Assembly at Athens in March, 1863. The constitution vests the legislative power in a single chamber, the National Assembly, or Boulé, consisting of 235 members elected by manhood suffrage. The Ministry as composed August 28, 1909, was as follows: Premier and Minister of Foreign Affairs, K. Mavromichalis; Interior, N. Triantaphyllakos; Finance, A. Eutaxias; Justice, Mr. Tofalis; Education, etc., P. Zaïmis; War, Col. L. Lapathiotis; Marine, L. Damianos.

HISTORY

CABINET CRISIS. In March the government was sharply attacked by the Opposition on the ground that it was responsible for the prevailing distress of the people. On March 31 the Premier, Theotoki, announced his resignation, but the Opposition leader, M. Ralli, was unable to form a ministry and the former Cabinet remained in force until July 17. On that date Theotoki resigned on account of the opposition to his Cretan policy and M. Ralli agreed to form a ministry on condition that the Chamber

be dissolved. This was accepted by the King but on the understanding that the elections were to be deferred till March. His programme was thorough economic and military reform. (For an account of the Cretan question, see CRETE and TURKEY, paragraphs on *History*.) Under the Ralli Ministry the government in July announced its submission to the decisions of the protecting Powers in regard to Crete and the Premier gave orders that the frontier be strictly watched in order to prevent the passage of arms and ammunition and of guerrillas into Turkey.

CRISIS IN THE ARMY. For a long time there had been discontent among the officers of the army with the military administration. A Military League was formed and presented its demands to the government. These included a demand that no command in the army should be held by the Crown Prince or any of the royal princes, that a council should be appointed to protect the interests of the army, consisting of the chiefs of the three divisions, the eldest being the president, and that the two war ministries should be composed of the best fitted officers of the army and not of civilians. Premier Ralli refused these demands, and when he decided to order the arrest of five mutinous officers in the garrison, and refused, on August 27, to receive representatives of the League who wished to hand him a memorandum, the officers of the League, five hundred in number, at the head of a force of two thousand men including artillery, cavalry and marines, withdrew to a hill outside of Athens as a warning of revolt unless their demands were met. Thereupon M. Ralli tendered his resignation. The King summoned M. Mavromichalis, who formed a new cabinet. One of the main demands of the officers of the League was for amnesty. This was granted by royal decree and at about the same time the new Premier announced his agreement to almost all the other demands. In foreign countries there was little sympathy with the programme of the League. It was believed that the military administration of the princes had been altogether for the good of the service, and the programme of the League was thought to be distinctly aimed against the royal family. Sympathy with the King and princes was shown in Greece on the occasion of the Crown Prince's journey to Germany. He was met by crowds who demanded that he should retain his command in the army. While on his way to Germany, he refused to meet the officers of one of the garrisons who were members of the Military League. Partisans of the League were angered by these demonstrations and by speeches the Crown Prince made at the time. A mass meeting held on the Field of Mars on September 27, at which 50,000 people were said to be present, carried a resolution expressing satisfaction with the Military League's opposition to the injurious influence of political parties in affairs of state and to the maladministration of the army and navy and declaring that the people would insist on their demands. They sent a deputation to the King, who received them cordially, congratulated them on having kept good order and declared that he would do all that the constitution permitted to do to insure the welfare of the state. The deputation then went to the Premier, who said that this action of the people had strengthened the hands of the government in the present emergency. When the Chamber opened in the first week of October, the

Ministry prepared to lay before it a mass of hastily considered legislation embodying the reforms. The King sanctioned these measures in principle. They comprised the following points: The cancellation of all powers on the part of the royal princes over promotions, the princes, though retaining their present rank, to have no executive duties either in the army or the navy; the abolition of the Crown Prince's command-in-chief; the abolition of the present General Staff; the authorization of the government to engage a foreign organizer to rehabilitate the army. In addition to these measures which were submitted by the Minister of War, the Minister of the Interior presented at the same time (October 11) certain rules for the purpose of defeating obstructive tactics in the Chamber. The attitude of the Chamber toward these reforms was not satisfactory to the leaders of the Military League, whose course throughout had been exceedingly high-handed. The Chamber having shown a spirit of independence on the question of removing the royal princes, the Military League was greatly incensed and was even said to be planning a *coup d'état*, that is to say, the temporary seizure of the government and the establishment of a provisional dictatorship. The government having learned of this immediately took steps to placate the League. The King announced that the princes would resign and the Premier told the Chamber that the military reforms must be voted at once. On October 15 both the military reforms and the rules proposed by the Minister of the Interior were passed by the Chamber. The other measures, 23 in all, were hurried through within an hour. The arbitrary spirit of the Military League was illustrated by dissatisfaction even with this display of docility. It was said that the League, fearing that the silent voting upon laws would be taken as a sign of compulsion, commanded the members to talk. Accordingly discussion was resumed in the Chamber on October 16.

Later in the month of October a new bill was brought in to provide for summoning the reserves and for the preparatory instruction of the young. The War Minister declared that the active army could be raised to 216,000, which, with the reserves, would make 450,000. At present there were 48,000 men still untrained who were available for service. The new law authorized the calling of these to the colors, the period of training not to exceed three months. By this time the Military League seemed to show a more acquiescent temper, but in the following month, through its official newspaper organ, it resumed its threatening attitude, declaring that it would insist on the overhauling of the diplomatic service and certain other departments and would publish a list of proscribed persons. The spirit of insubordination, which the League had done so much to foster, began to show itself in its own ranks at the close of November, when the junior members, contending that the present leaders showed little regard for their interests, demanded the appointment of a new committee. On December 20 Colonel Lapathiotis, the new War Minister, who was a representative of the Military League, brought in the army reorganization bill. In the discussion that followed he spoke slightly of the powers of Parliament. This caused much indignation among the Deputies and he was soon afterwards dismissed.

THE NAVAL CRISIS. Meanwhile trouble had arisen among the junior officers of the navy, who preferred certain demands to the government, some of which the government accepted. One of the changes demanded was the reduction of the age of retirement for the senior officers. The government brought in a bill reducing the age for captains from the sixty-fourth to the fifty-eighth year, and for commanders from the sixty-second to the fifty-fifth. This concession was not sufficient and there arose at the end of October a mutiny among the junior officers. Commander Typaldos, the representative of the latter, demanded the immediate removal of a number of officers and the reinstatement of a subaltern officer who had been cashiered during the war with Turkey. Upon the Minister of War's refusal, Typaldos became threatening, saying that, unless the request was granted within twenty-four hours, he would attack the Salamis fleet with his torpedo flotilla. He appealed for support to the Military League, of which he was a member, but the League having learned that a good many of the junior officers were not in sympathy with Typaldos, that the crews of the fleet were either indifferent or hostile to him and that he could not even count on the officers of his own flotilla, decided to expel him and to stand by the government. The mutiny which occurred at the end of October turned out to be a trivial affair. A force of about three hundred men and twenty officers attacked three battleships with destroyers. Shots were fired by one destroyer and the fire was returned. A boiler pipe on board the destroyer was burst, scalding five men to death. One man was killed on a battleship. These were the only casualties. The crews of the destroyers refused to obey the command of Typaldos to continue fighting and soon the force of mutineers was in confusion. About fifty arrests were made. Typaldos and his officers escaped into the interior, but he was arrested during the first week of November. Most of the men and officers of the fleet remained loyal, and throughout the navy generally the feeling ran very high against the mutineers. It was decided that the mutineers should be tried by the Assize Court and not by court martial. On November 4 the law embodying the reduction of the age of retirement according to the promise made to the junior officers was introduced in the Chamber. It occasioned much discontent among the senior officers. The cause of the mutiny as distinct from its immediate occasion was the demoralization that had resulted from the course taken by the Military League.

FINANCIAL PROPOSALS. On October 13 the government submitted proposals for meeting the deficit of eight million drachmas by more economical administration of the army and navy and for raising besides from new revenues and by means of further economies the sum of twenty million drachmas in order to provide for the proposed reorganization of the army and navy. The new sources of revenue included, first, an increase in the duties on gunpowder, dynamite, spirits and other articles that could not be classed as necessities of life; a succession duty, an income tax, and a tax on movables. At the same time the government proposed a reduction of duties on petroleum, rice and other necessities, and the remission of the tax on plowing animals and vineyards. On behalf of the government plan it was urged that it re-

moved the burdens from the poor and placed them on the classes able to bear them. On the other hand the industries affected by them raised a protest and the United Guilds urged against them that they were inconsistent with a principle which had been asserted at the mass meeting of September 27 and accepted by the government, namely, that articles of consumption should not be taxed. Toward the end of November there were signs of opposition to the new financial measures in the provinces and some of their features were objectionable also to foreign governments. On November 23 the law reducing the age of retirement among the senior officers in the navy reached its third reading. On December 7 the fiscal measures preliminary to the presentation of the budget were introduced, including a tax on alcohol, a duty on imported iron ware, a new duty on malt imported for the manufacture of beer, the abolition of the tax on plowing animals, the regulation of the exportation of wine, and the establishment of a sugar monopoly. It was also proposed to abolish the tax on vineyards.

OTHER EVENTS. In March preparations were made for the celebration of the centenary of Lord Byron's visit. The British excavations at Sparta were going on during the summer (see *ARCHÆOLOGY*). Early in June the military authority condemned to varying terms of imprisonment 217 non-commissioned officers on the charge of insubordination for having petitioned the Chamber against the passage of a law which tended to restrict the promotion of non-commissioned officers to the commissioned ranks. In July an earthquake occurred in Elis accompanied by volcanic eruptions near Ponhiote. The loss of life was estimated at thirty and four hundred houses were said to have been destroyed.

GREEK CATHOLIC CHURCH or GREEK CHURCH. A religious body which comprises in its widest sense all those members following the Greek or Greco-Slavonic rite. Its official designation is the Holy Orthodox Catholic Apostolic Church. The membership throughout the world is in the neighborhood of 100,000,000. There are in the United States four branches: Russian Orthodox, with a membership of about 50,000, about 100 churches and 75 ministers; Greek Orthodox, with about 100,000 members, 42 churches and 43 ministers; Syrian Orthodox, with about 4000 members, 8 churches and 9 ministers, and the Servian Orthodox, with about 15,000 communicants, 10 churches and 9 ministers. The archbishop in charge of the Russian Orthodox Church formerly had a seat in Alaska and now resides in New York City. The Greek Church has no bishop in the United States. The Syrian Church belongs to the Synod of Antioch. They have a bishop concentrated by the Russian Archbishop.

GREEN, JAMES GILCHRIST. An American rear-admiral, retired, died February 16, 1909. He was born in 1841, and entered the volunteer naval service as acting ensign in May, 1861, and was transferred to the regular service at the close of the Civil War. He was made commander in 1887, and captain in 1900. In that year he was commandant at the Havana naval station. He was retired in 1901 at his own request, as rear-admiral, after 40 years of service.

GREEN BUG. See *ENTOMOLOGY*.

GREENLAND. A Danish colony, and, after Australia, the largest island in the world. The area is variously estimated at from about 500,000 to over 800,000 square miles. The colonized area, extending along the west coast from about 60° to about 72° north latitude, is estimated at 46,740 square miles and its population (1901) at 11,895. The trade is a government monopoly. The total imports from Denmark, 1907, amounted to 1,119,000 kroner (1 krone=26.8 cents); and the exports to Denmark, to 492,000 kroner.

GREENWOOD, FREDERICK. An English author, journalist and publicist, died December 16, 1909. He was the originator and first editor of the *Pall Mall Gazette*, and when this journal was purchased by Yates Thompson and made a Liberal organ, Greenwood founded the *St. James Gazette*, which he edited for several years. He was the author of histories of Napoleon Bonaparte and Napoleon III., and also wrote two novels, *The Lovers' Lexicon* and *Imaginations in Dreams and their Study*.

GREGORY, EDWARD JOHN. An English painter, died June 22, 1909. He was born in Southampton in 1850 and studied at the art school in his native town and at South Kensington. His first pictures were exhibited at the Royal Academy in 1875. He was made academician in 1898. Among the best known of his works are "Saint George" (1876); "The Signal"; "A Rehearsal" (1882); "Sir Galahad," and "Is It a Mouse?" He was known especially as a skilful painter of domestic genre subjects.

GRENADA. The largest of the Windward Islands (q. v.) and the residence of the Governor; a British possession. Area, 133 square miles; population (including some of the Grenadines), in 1906, 70,505; in 1908, 72,988. St. George's is the chief town. The Grenadines are a chain of small islands lying between Grenada and St. Vincent, within whose governments they are included. The soil is fertile; cacao, spices, rubber, cotton, coffee, and fruits are grown, and the forests are rich in valuable timbers. The total imports and exports in 1908 were £303,783 and £359,245 respectively, against £288,665 and £417,299 in 1907. The revenue and expenditure were (1908-9) £73,182 and £72,661 respectively, against £79,871 and £68,383 in 1907-8. The public debt stood (1909) at £123,670.

GROSS, CHARLES. An American scholar and educator, died December 3, 1909. He was born at Troy, N. Y., in 1857, and graduated at Williams College in 1878. From 1884 to 1888 he was engaged in literary work in England, and in the latter year became instructor in Harvard University. He was later made professor of history in that institution. Among his writings, which are numerous, are: *Gilda Mercatoria* (1883); *The Gild Merchant* (1890); *Bibliography of British Municipal History* (1897); *Sources and Literature of English History* (1900). He also translated Lavisse's *Political History of Europe* (1891) and Kayserling's *Christopher Columbus* (1893). He was a contributor to American and English historical reviews and was a corresponding member of the Royal Historical Society of England and the Royal Society of Göttingen.

GROUSSET, PASCHAL. A French journalist and communist, died April 10, 1909. He was

born at Corte in the island of Corsica in 1844. For a short time he studied medicine in Paris, but soon abandoned this for journalism. He wrote scientific articles for *L'Etendard* and *Le Figaro*, under the pen-name of "Docteur Blasius." He began also to write fiction under the name of "Leopold Virey." In 1869 he joined Henry de Rochefort in the management of the journal *La Marseillaise*. He quarrelled in 1870 with Prince Pierre Bonaparte and sent two seconds to answer the challenge sent by the latter. One of these, Victor Noire, was killed by the Prince. This aroused in Grousset bitter opposition to the empire and he attacked it savagely in *La Marseillaise*. For this he was condemned to a heavy fine and repeated imprisonments. In 1871 he took part in the insurrection and was elected a member of the Commune, taking charge of foreign affairs, but in an attempt to leave Paris in June he was arrested and deported to New Caledonia. Escaping in 1874 with Rochefort and others, he went to England, where he acted as the London correspondent of *Le Temps* under the name of "Philippe Daryl." He returned to Paris in 1881 and in the same year was defeated in the elections. He was chosen Deputy in 1893 and was re-elected in 1898, 1902 and 1906. He wrote much and among his published works are the political sketches, *Le bilan de l'année 1868* (1869); *Les origines d'une dynastie, le coup d'état de Brumaire an VIII.* (1869). His *Les condamnés politiques en Nouvelle Calédonie* (written with Jourde, 1876) is autobiographical. He wrote also many works of travel and life abroad and translated the works of several English authors, including Stevenson and Mayne Reid.

GRUYER, FRANÇOIS. A French chemist and writer on art, died in November, 1909. He was born in 1824 and studied at the École des Arts et Manufactures. He was appointed lecturer in chemistry at the Institut Agronomique of Versailles, but he later abandoned science for the fine arts, and from 1857 to 1868 published seven volumes on Raphael's frescoes of the Vatican, and on his Virgins. In 1874 he published *Raphael as a Portrait Painter*. He wrote other works in the field of art criticism and of the history of art, and many essays and periodicals. He was appointed in 1872 inspector-general and later a member of the Superior Council for the Fine Arts. He was finally elected Conservateur de la peinture at the Louvre. He was elected a member of the Académie des Beaux-Arts in 1875. He was also curator of the Musée Condé.

GUADELOUPE. A French colony composed of several islands of the Lesser Antilles; total area, 687 square miles; population (1906), 190,273. The principal islands are Guadeloupe proper, or Basse-Terre on the west and Grande-Terre on the east of a narrow channel separating the two. The five smaller islands, Marie Galante, Les Saintes, Désirade, St. Barthélemy, and St. Martin, are dependencies of the colony proper. Capital, Point-à-Pitre (population 14,861). There are 113 public and private elementary schools, with 12,182 pupils, and two secondary establishments, with 728 pupils. The country is fertile; 27,632 hectares are devoted to sugar, employing 28,800 persons; 5138 to coffee, employing 7935 persons; 2540 to cacao, and 6926 to manioc. Valuable timber is con-

tained in the forests, which cover 71,256 hectares. The imports in 1907 amounted to 13,420,855 francs (France, 8,163,000); exports, 16,269,156 (France, 15,075,000). Sugar, rum, and cacao are the principal exports. There is direct steamship communication with France. The budget for 1908 balanced at 4,692,322 francs; expenditure of France (budget of 1908), 400,000 francs. Debt outstanding January 1, 1907, reported at 10,575,000 francs. The Bank of Guadeloupe has capital, 3,000,000 francs; reserve funds, 843,746. The colony is administered by a governor and an elected council, and is represented in the French Parliament by one senator and two deputies.

GAULEGNAY RIVER BRIDGE. See BRIDGES.

GUARANTEE OF DEPOSITS. See BANKS AND BANKING.

GUATEMALA. The most northern and western republic of Central America. The capital is Guatemala City.

AREA AND POPULATION. The estimated area of the 22 departments comprising the republic is 48,300 square miles. The population in 1903 was 1,842,134; at the end of 1906, 1,882,902 (estimated). About 60 per cent. of the inhabitants are Indians, and most of the remainder mestizos. The principal towns, with population, are: Guatemala City, 125,000; Coban, 30,770; Quezaltenango, 28,940; Totonicapan, 28,310; San Pedro, 10,190. Immigration is small, but is being encouraged by the government; a law promulgated April 30, 1909, makes provisions for the care of colonists. Primary instruction is free and nominally compulsory. In 1908 there were 1330 public primary schools, with 51,280 pupils. In 1909 the study of English was made compulsory in the primary schools. Secondary schools are established at Guatemala City, Quezaltenango, and Chiquimula. At the capital and at Quezaltenango are institutions for higher and professional education.

INDUSTRIES. Agriculture is the principal industry, and the leading crops are coffee (controlled largely by German capital), sugar, corn, bananas, tobacco, and cacao. A presidential decree of July, 1908, made the cultivation of a minimum of cotton compulsory on suitably conditioned lands, and the encouragement of agriculture in all its branches is the subject of governmental aid. The average coffee crop amounts to about 70,000,000 pounds; that of 1909 was estimated at 81,000,000 pounds. Cattle raising is of considerable importance. The exploitation of the timber reserves of the country is a valuable industry and receives considerable official attention; valuable concessions were recently granted for the cutting and export of cabinet (especially mahogany) and dye woods, the extraction of chicle and other gums, and the development of rubber culture. There are mines of gold, silver, copper, lead, zinc, antimony, and salt, but hitherto they have been only slightly exploited. Manufacturing has not yet attained importance, although some cotton textiles are produced, and a few breweries, sugar mills, and tanneries are profitably conducted. A factory near Quezaltenango consumes about 2,500,000 pounds of cotton annually.

FOREIGN COMMERCE. The values of imports and exports have been as follows:

	1906	1907	1908
Imports.....	\$7,220,760	\$7,316,574	\$5,811,586
Exports.....	7,136,280	10,174,486	6,756,143

In 1908 the decrease in imports was attributable largely to the falling off in receipts of railway material; and the principal cause of the export decline was the small coffee crop. The leading imports include: Cotton goods (\$1,389,576 in 1908), ironware, provisions, wines and liquors, chemicals, and machinery. The chief exports were, in 1908: Coffee, 60,722,000 pounds, valued at \$5,697,183; hides and skins, \$291,283; bananas, \$200,474 (668,246 bunches, all shipped to the United States); sugar, \$168,788; rubber, 158,573; woods, \$144,349. Of the imports to and exports from Guatemala, the share of the United States in 1908 was \$1,718,660 and \$1,776,676; Germany, \$1,258,193 and \$3,939,207; Great Britain, \$1,061,843 and \$713,449; France, \$209,947 and \$713,765. Of the 1908 coffee export, Germany received 35,725,100 pounds, the United States 13,965,900, and Great Britain 5,903,100.

COMMUNICATIONS. There were about 480 miles of railway in 1909. A line is under construction between Quezaltenango and Guatemala City. New lines and extensions are projected; notable among them are: A line from Zacapa to the frontier, connecting with Santa Ana in Salvador, and forming a link in the Pan-American Railway; a line from Caballo Blanco to Pajapita, connecting the Guatemalan Western and Ocos railways; a line from Pajapita to the frontier, connecting with the Mexican railways. At the end of 1908 there were 3697 miles of telegraph and 384 miles of telephone lines.

FINANCE. For 1907 revenue and expenditure in paper pesos were reported at 35,297,823 and 44,560,221 respectively; for 1908, the reported revenue was 37,335,958 pesos paper. In the former year the paper peso was worth about 8 cents; in the latter, about 6½ cents. Over one-half the revenue is derived from customs, and one-third from taxes on spirits, tobacco, etc. About one-half the expenditure is for the public debt. At the end of 1908 the external gold debt, including arrears of interest, amounted to \$10,102,465; the currency (paper) debt stood at 71,884,744 pesos.

ARMY. The regular army numbers about 7000 officers and men and the militia about 57,000. All citizens not exempted are liable for service from the 18th to 25th year in the active army and from the 26th to 50th in the militia.

GOVERNMENT. The executive authority is vested in a president, who is elected for a term of six years and is assisted by a cabinet of six members. The legislative power devolves upon the representative National Assembly (69 members) and the Council of State (15 members—5 elected by the Assembly and 10 appointed by the President, 6 being the cabinet ministers). The President in 1909 was Manuel Estrada Cabrera, who, as Vice-President, succeeded to the executive office in March, 1898, and subsequently was elected for the term ending March 15, 1905, and again for the term ending March 15, 1911. See ARBITRATION, INTERNATIONAL.

GUIANA. See BRITISH GUIANA; DUTCH GUIANA; FRENCH GUIANA.

GUINEA, FRENCH. See FRENCH GUINEA.

GUNPOWDER. See **MILITARY PROGRESS.**

GYMNASTICS. The eleventh annual inter-collegiate gymnastic meet was won by Columbia, whose team scored 17 points. Princeton, the 1908 champion, finished second with 13 points and New York University third with 9 points. Other colleges to score were: Pennsylvania, 7 points; Yale, 5 points, and Rutgers 3 points. The individual championship went to Schoonmaker of Columbia, who made 320 points. Dowd of Princeton was second with a total of 315 and Melitzer of Columbia third with 205. The all-around national championship of the Amateur Athletic Union was again won by Fred Steffens, who contested under the colors of the Turn Verein Vorwaerts. Steffens's total score was 144.55 points, Frank Jirasek of the Bohemian Gymnasium Sokol finished second with 143.65 points and Charles Downs of the Alsace-Lorraine Turn Verein, third, with 136.51 points. The club championship went to the Bohemian Gymnasium Sokol. The West Side Y. M. C. A., which won the event in 1908, took second place.

GYROSCOPE. The application of the principle of the gyrost to transportation scored a further advance in 1909 when Louis Brennan, the inventor of the Brennan torpedo, exhibited before the Royal Society of England on November 14 a car 14 feet in length running on a mono-rail and carrying 40 passengers. It will be recalled that in the spring of 1907 Mr. Brennan exhibited before the Royal Society a model car 6 feet in length which, running along a single rail or a cableway, was able to maintain its position and equilibrium despite the shifting of the load and which indicated the possibility of the gyroscopic principle being applied to larger cars working on a single line of track and capable of operating. This principle of the gyroscope may be stated as the use of rapidly rotating masses in the form of fly wheels to preserve a desired position of the axis of the car and to resist forces tending to displace it. The car was supported on its single track by a bearing wheel, so that the problem was simple to keep the gyroscope wheels in rotation and communicate motion to the driving wheels. In the model originally shown electricity was employed as the motive power and the fly wheels revolved at a speed of 7500 revolutions per minute. The gyroscopic apparatus amounted to but 5 per cent. of the total weight of the locomotive. For the 1909 experiments a car was used 14 feet in length, 13 feet high and 10 feet wide, which weighed 22 tons, a gasoline engine supplying the motive power both for the gyroscopes and the driving wheels. The gyroscopes were two in number, weighed three-quarters of a ton each, and revolved at a speed of 3000 revolutions per minute. Care was taken to cut down friction losses at the bearings as much as possible and the wheels were incased and ran in a vacuum. The car was operated on a circular track 220 yards in circumference and despite the efforts of the passengers to destroy the balance by shifting their positions suddenly the gyroscopes maintained its proper position.

While the Brennan experiments were in progress in Great Britain, Herr Scherl, a German capitalist, was showing in Berlin a gyroscopic car which was later brought to the United States. While independently devised it was in many respects similar to that of the English inventor. It was invented by Paul Froelich and

the model tested was 18 feet long and 4 feet wide, carried on two 2-wheeled trucks, on each of which was a $\frac{1}{2}$ horse-power motor. The two gyroscopes controlling the equilibrium of the car were mounted in the frame, so that the fly wheels normally would rotate in a horizontal plane on vertical axes. The fly wheels weighed only 125 pounds each, but they were operated by electric motors at the high speed of 8000 revolutions per minute. The motors were at the lower ends of the shaft and motor; fly wheels and shafts were mounted in air-tight casings from which the air had been exhausted. The casings are mounted on transverse axes journaled into the frame of the car so that they can move fore and aft in a vertical plane. The motors are arranged to revolve in opposite directions and they are connected by bell-crank levers and toothed quadrants, for the working of the gyroscopes is always in opposite directions. A peculiar feature in which the Scherl car differs from the Brennan is in having a so-called "precession motor" carried at the rear of the gyroscopes and operated by hydraulic pressure produced by an electrically-driven oil pump. This tends to increase the resistance of the gyroscope to any action working to displace its axis and thus automatically ends in restoring the car to a position of equilibrium.

HÆMOGLOBIN. The red coloring matter of the blood, has been isolated for therapeutic use. It occurs as a brownish-red powder, soluble in water. It is given internally for the same purpose as organic iron.

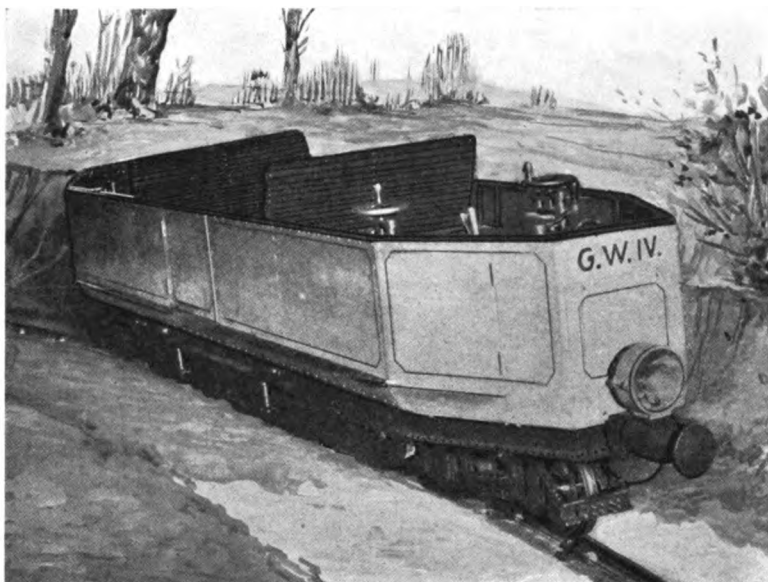
HAGUE CONFERENCE. See **ARBITRATION, INTERNATIONAL.**

HAINES, SIR FREDERICK PAUL. A British Field Marshal, died June 11, 1909. He was born in 1819, and served as military secretary in 1845 in India, where he distinguished himself for gallantry. He served as regimental officer in the Crimean War, and in 1856 returned to India as military secretary to the government of Madras, serving throughout the Indian Mutiny. After a series of home appointments, he was sent again to India in 1865 to command a division of the Bengal army. After another interval at home, he was made commander-in-chief at Madras, and in 1875 was nominated to the chief command in India, which he held until 1881.

HAITI. A West Indian republic, occupying the western and smaller portion of the island of Haiti. The capital is Port-au-Prince.

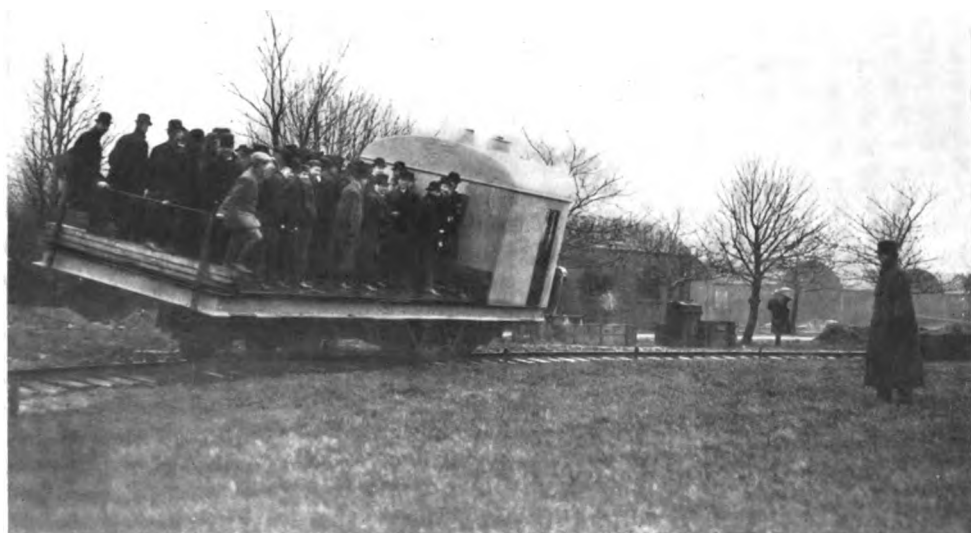
AREA AND POPULATION. The area is estimated at about 10,200 square miles. The population, according to an ecclesiastical estimate based on parish registers, was 1,500,000 in 1906; an estimate in 1908 puts it at 1,800,000. About nine-tenths of the inhabitants are negroes and the rest mulattos, the number of whites being negligible. The principal towns, with estimated population, are: Port-au-Prince, 75,000; Cape Haiti, 29,000; Les Cayes, 25,000; Gonaives, 18,000. The official language is French, of which the vernacular is a dialect. Besides some private schools and five public lyceums, there are about 400 public primary schools. The educational system is very imperfect. The prevailing religion is Roman Catholicism.

INDUSTRIES. The industries are mainly agricultural. The most important product is coffee, but the export duty thereon has greatly hin-



Courtesy of "Scientific American"

THE SCHERL MONORAIL CAR



Photograph by Edwin Levick, New York

**THE BRENNAN MONORAIL CAR RUNNING ON A CURVED TRACK
MONORAIL EXPERIMENTS OF 1909**

dered its development. At present coffee shipments average only a little more than half the former annual export of 100,000,000 pounds. Cacao is an important product, the 1908 crop amounting to about 6,000,000 pounds. Cotton culture is increasing, and that of sisal hemp has recently declined. There are numerous sugar plantations. Of the many valuable woods cut for export, logwood is the most important. The mineral resources include gold, silver, copper, iron, antimony, tin, sulphur, etc., but they are almost wholly undeveloped. Manufacturing establishments are few and their output small. Manufactured products include soap, candles, and matches, and rum and other spirits are distilled.

COMMERCE. For the fiscal year ending September 30, 1908, imports and exports were reported at \$4,701,160 and \$3,478,848 respectively. Reported exports for the preceding year amounted to \$14,330,887. The exports of coffee during the fiscal years 1906 and 1907 amounted to 56,395,076 pounds and 59,824,869 pounds respectively; cacao, 4,582,403 and 4,839,737; logwood, 87,790,000 and 114,458,880; logwood roots, 48,779,276 and 44,076,320; cotton, 3,865,216 and 4,501,578; cotton seed, 6,208,289 and 7,909,000. Other exports were honey, wax, fustic, cowhides, goatskins, orange peel, and mahogany. Imports of textiles, provisions, and household articles come principally from the United States. The total imports therefrom in 1907 amounted to \$3,145,853, and the exports to the United States, \$1,220,420; in 1908, \$3,500,775 and \$447,186 respectively. Almost the entire coffee export goes to Europe. Of the total exports, France receives about two-thirds, Germany taking second place.

COMMUNICATIONS. A fifteen-mile railway connects Cape Haiti with Grande Rivière. A light railway is in operation from Port-au-Prince to Lake Assuëti (twenty-eight miles), being intended ultimately to connect the capitals of Haiti and the Dominican Republic. Another line, projected from Gonaïves to Hinche, is open as far as Passerelle, and one from Les Cayes to Perrin has been contracted for. A regular line of steamboats plies between Grande Saline, at the mouth of the Artibonite River, and the interior. The principal towns are connected by government telegraph. There are thirty-one post-offices.

FINANCE. Revenue is derived chiefly from customs; the largest item of expenditure is service of the debt. In the fiscal year ending September 30, 1906, the revenue amounted to \$2,731,761 and 5,135,250 gourdes (1 paper gourde is worth about 20 cents); in 1907, \$2,547,664 and 7,718,291 gourdes. For the fiscal year 1908, the expenditure was estimated at \$2,651,249 and 6,885,660 gourdes; for the fiscal year 1909, the estimated revenue was \$3,235,201 and 5,415,300 gourdes, and the estimated expenditure \$2,777,688 and 7,283,953 gourdes; for the fiscal year 1910, \$2,694,107 and 6,684,656 gourdes. The public debt on March 31, 1909, amounted to \$25,096,997 and 17,309,590 gourdes.

ARMY AND NAVY. The navy includes three small gunboats. The Haitian army varies greatly in strength from time to time with political circumstances. Returns for 1909 gave for the troops of the guard: 1 regiment of artillery (300 men), 4 regiments of infantry (1300 men); 2 battalions of chasseurs (300

men), 1 regiment of cavalry (187 men), and two battalions of riflemen; in the line there were 38 companies of infantry (9361 men), 2 regiments of artillery (300 men), and 50 companies of gendarmes (2000 men), or a grand total of 14,060 men.

GOVERNMENT. The executive authority is vested in a president, who is elected (by the National Assembly) for a term of seven years and is assisted by a cabinet of four members. The legislative power devolves upon the National Assembly, which consists of the Senate (39 members) and the Chamber of Representatives (95 members chosen by direct vote). The President in 1909 was General Antoine F. C. Simon, who was elected December 17, 1908, after the deposition of General Alexis Nord.

HALE, EDWARD EVERETT. An American clergyman, author and philanthropist, died June 10, 1909. He was born in Boston in 1822, the son of Nathan Hale, editor and proprietor of the *Boston Daily Advertiser*. At twelve years of age he had learned to set type in his father's office. He was educated at the Boston Latin School and at Harvard College, where he graduated in 1839, when only seventeen years of age. In 1842 he was licensed to preach, and undertook his first pastorate at the Church of the Unity in Worcester, Mass., in 1846. Here he remained for ten years, going from there to the South Congregational Church (Unitarian) of Boston. Of this church he continued pastor during the remainder of his life. Dr. Hale was a writer from his earliest youth, but his famous story, *The Man Without a Country*, written just before the outbreak of the Civil War, brought him instant fame, and it is as the author of this little book that he was, perhaps, most widely known. This story, written for the purpose of stimulating national patriotism, wonderfully achieved this purpose, and became, in the lifetime of its author, almost a classic. Dr. Hale wrote much that, in point of literary value, probably exceeds *The Man Without a Country*. Throughout his long life he never ceased writing, and his works include novels, biographies, histories, essays and religious and ethical productions. He wrote, also, a charming volume of reminiscences entitled *Memories of a Hundred Years*. His authorship was, however, but a part of his daily life. He made no pretensions as a literary artist, and wrote only because writing was his natural method of expression. His stories are marked by a kindly humor and a robust and inspiring enthusiasm.

Dr. Hale was identified with nearly all the forward movements that arose in the country during his lifetime. He was the organizer of the Lend a Hand Club, and a promoter of Chautauqua. He was intimately engaged in the provision for the great immigration which began with the Irish famine of 1845 and 1846, and he was closely connected with the work of the New England Emigration Aid Society in colonizing Kansas after 1854.

In spite of his activity in literary and philanthropic lines, Dr. Hale insisted that he wished first to be thought of as a minister of the gospel. He said: "My vocation, first, second and last, is that of a minister of the gospel. My avocation has been literature." With characteristic courage, Dr. Hale, in 1900, substituted water for wine at the communion table of his church. He was not a great

preacher, in the oratorical sense, but his earnestness and simplicity gave him effectiveness in the pulpit.

It is probable that Edward Everett Hale will be longest remembered for what he was, rather than for what he did. Throughout his whole career he was an example of optimistic, aggressive patriotism. The purity, simplicity and beauty of his life made him beloved by those who knew nothing of his writings or of his other achievements. His outlook on life is best summed up by the motto of his *Ten Times One is Ten*, adopted also as the motto of the Lend a Hand Club,

"Look up and not down,
Look forward and not back;
Look out and not in, and
Lend a hand."

In 1903 Dr. Hale was appointed chaplain of the United States Senate, and he served in that position until his death. He was connected editorially with several literary journals and newspapers. Among his writings, in addition to those mentioned above, are: *In His Name*; *Mr. Tangier's Vacations*; *What Career? The Story of Massachusetts*; *A New England Boyhood*; *Chautauquan History of the United States*; *Ralph Waldo Emerson* (1902); *We, the People* (1903); *New England Ballads* (1903); *Progress in the United States Senate* (1904); *Foundation of the Republic* (1906). He also edited *Modern Achievements*, in ten volumes (1905).

HALL, JOHN DENNIN. An American architect and inventor, died April 20, 1909. He was born in Salisbury, N. Y., in 1828, and graduated from Union College in 1854. Previously he had gone to California with the Argonauts of '49, and while there had invented a machine for separating gold from dirt. Returning to the East he began the practice of architecture, but after a few years gave his time wholly to invention. Some of his better known inventions are a folding sewing table, a car coupler, a typewriter for the use of the blind, and a machine for the cheap manufacture of thermometers. In all, Mr. Hall secured over 200 patents on his inventions. At the time of his death he was at work on a propeller for aeroplanes.

HALLE, ERNST VON. A German naval writer and official, died June 27, 1909. He was born at Hamburg in 1868, and attended the universities of Munich, Bonn, Berlin and Leipzig. He traveled extensively and in 1895 published a monograph on *Trusts in the United States*. His work on the *Sea Interests of Germany* was published in 1897, and was followed yearly by a series of works on shipping affairs and political economy. He bitterly attacked Joseph Chamberlain's naval policy in 1904, and in 1905 published *Amerika*. His later works related chiefly to war. Von Halle was for some time an official of the Ministry of Marine.

HALLEY'S COMET. See ASTRONOMY.

HAMILTON, DAVID JAMES. A Scotch pathologist, died February 19, 1909. He was born in 1849 and studied in Edinburgh, Vienna and Strassburg. He was professor of pathology in Aberdeen University, and was one of the most eminent pathologists of his time. He wrote *Pathology of Bronchitis* (1883); *Text*

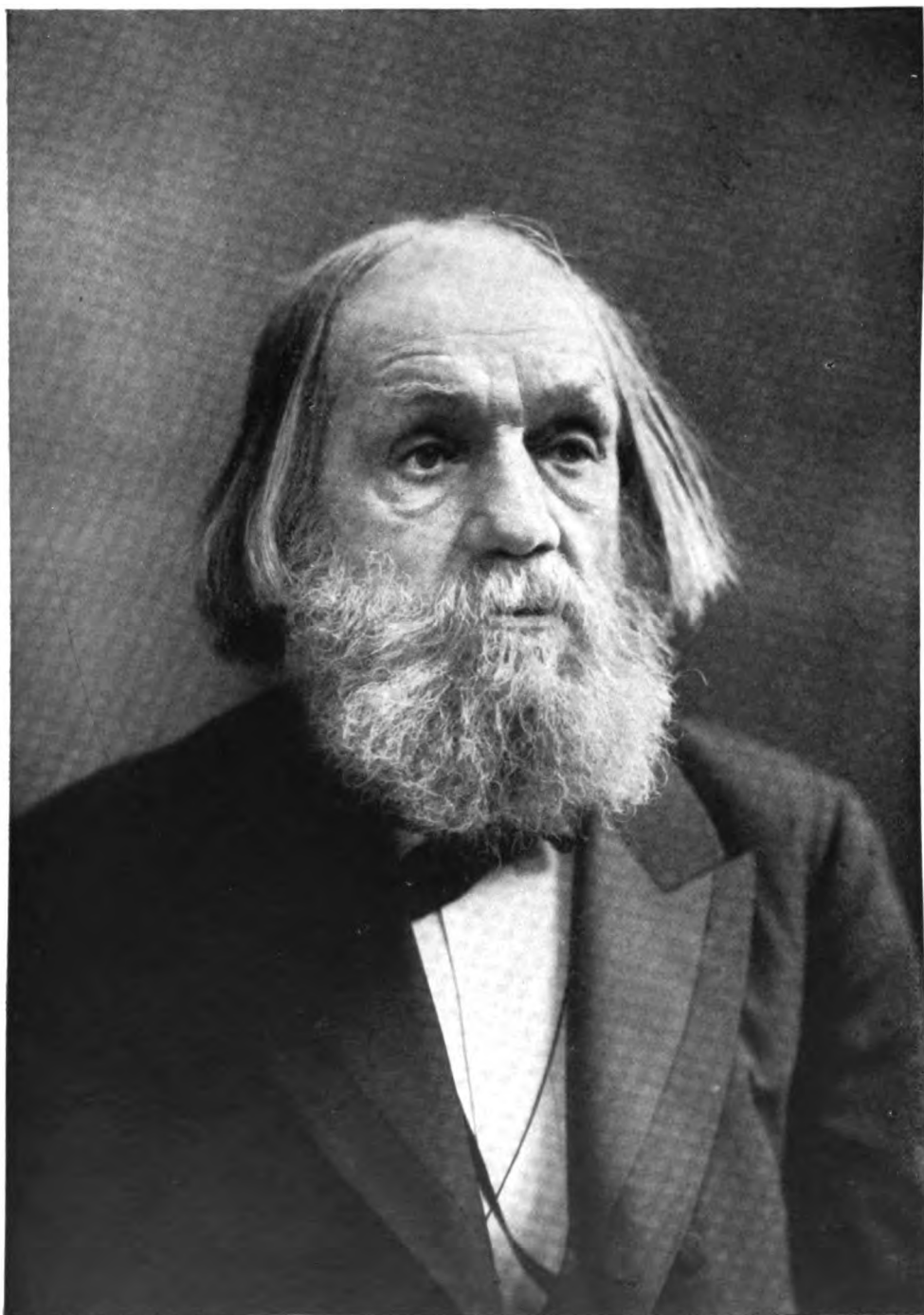
Book of Pathology (1889), and many pathological essays.

HAMILTON COLLEGE. An institution of higher learning at Clinton, N. Y., founded in 1812. There were in 1909, 185 students and 19 members of the faculty. The endowment was increased during the year by \$300,000. The library contains 49,200 volumes. The productive funds amount to about \$600,000 and the total income to about \$50,000. The president is M. W. Stryker, D.D., LL.D.

HAMPTON NORMAL AND AGRICULTURAL INSTITUTE. An institution at Hampton, Va., founded in 1868 by General Chapman Armstrong under the auspices of the American Association for the practical education of the children of ex-slaves. In 1870 it was chartered by a special act of the General Assembly of Virginia, and thus became independent of any church organization. It is a private corporation controlled by a Board of Trustees, who come from various parts of the country and belong to different religious denominations. In 1878 the Institute opened its doors to Indian pupils. The aim of the school as expressed by General Armstrong is: "To train selected youth who shall go out and teach and lead their people, first by example by getting land and homes; to give them not a dollar that they can earn for themselves; to teach respect for labor; to replace stupid drudgery with skilled hands; and to these ends to build up an industrial system for the sake, not only of self-support and intelligent labor, but also for the sake of character." The enrollment for the year 1909-10 was 1356, of which 841 were in the boarding department, and 515 were in the Whittier school. There were 615 negro girls, 30 Indian girls, 678 negro boys and 33 Indian boys. There were 97 men and women on the teaching staff of the various departments, of which 46 were in the academic department, 11 at the Whittier school, which is the elementary department used as a training school for teachers, 12 in the agricultural department, 4 in the domestic arts, 3 in the domestic science departments, and 21 in the trade schools. The officers of the school in 1909 were: Principal, Hollis B. Frissell; Vice-Principal, George B. Phenix; Chaplain, Herbert B. Turner; Treasurer, Frank K. Rogers, and Secretary, William H. Scoville. The President of the Board of Trustees is Robert C. Ogden.

HANKIN, ST. JOHN ÉMILE CLAYBERG. An English author and dramatist, died, supposedly by his own hand, on June 19, 1909. He was born at Southampton in 1869 and was educated at Malvern College and Oxford University. He contributed to various journals, including *Punch*, the *Times*, the *Saturday Review* and the *Indian Daily News*. His first acted play was *The Two Miss Wetherbys* (1903), and his best known play is *The Return of the Prodigal* (1905). *The Charity that Began at Home* was produced in 1906. He wrote, also, *Mr. Punch's Dramatic Sequels* (1901) and *Lost Masterpieces* (1904).

HANSEN, ÉMILE CHRISTIAN. A Danish botanist, died August 27, 1909. He was born in Ribe, Jutland, in 1842. He started in life as a house painter, but his ambition led him to study art at Copenhagen. He soon turned from this, however, to the natural sciences. For three years he supported himself by tutor-



Photograph by Davis and Eickemeyer

Courtesy of the "Review of Reviews"

EDWARD EVERETT HALE

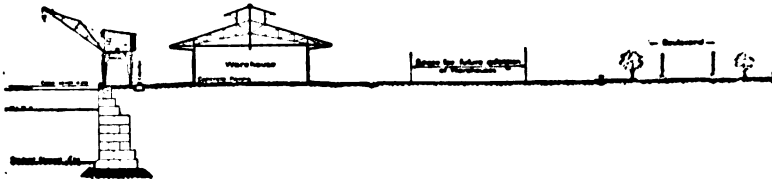
ing, but in 1866 he obtained a scholarship which enabled him to study mathematics and science at the Copenhagen University. He became an instructor in the gymnasium there, and devoted himself to the study of chemistry and botany, especially with regard to the physiology of plants. In the latter science he came to be one of the recognized authorities. He also made special studies in the lower orders of plants, especially of the fungi. He was later appointed head of the physiological laboratory at Carlsberg. His studies in alcoholic fermenting yeasts and other microorganisms influencing them led to a wide study of the fungi which established a new epoch in botany. He gave practical value to his discoveries by evolving a plan to place the utilization of yeast cultures on a new basis, and in 1887, with Professor Kühle, he devised an apparatus for producing a new ferment which is now in use in many breweries in Europe. He wrote a work on microorganisms found in the atmosphere, and other papers of kindred nature.

HARBORS. An important development of the harbor improvements at the port of New York which have been in progress for many years was the opening of the new Ambrose Channel. This important work involved the deepening of an old channel with a depth of but 16 feet at mean low water, which was available for use only by tow-boats, scows and very light draft vessels. The project called for en-

nual value of foreign commerce in 1908. During 1908, 124 different ships drawing 27 feet or more made 484 trips outward and 137 trips inward. Prior to the improvement none of these ships could have crossed the bar to enter or leave the harbor except at extreme high tide or after lightering.

The most important work in harbor construction was the completion of the great artificial port of Dover, which was done by an elaborate system of breakwater construction and is more fully described elsewhere. (See **BREAKWATERS.**) The harbor thus formed furnishes protection for an entire fleet of the largest battleships and includes over a square mile of area. The cost of the work had amounted to about \$20,000,000. Southampton is another instance of a British port where developments were in progress. The London and South-Western Railway Co. obtained from Parliament sanction for the construction of a dry-dock which will be 1000 feet in length, with an entrance 115 feet wide, and 37½ feet of water over the sill, in other words it was to be capable of taking the largest ocean liners. A new basin amounting to 16 acres was under construction and the quay accommodation was extended 2500 feet, with a depth alongside of 35 feet, capable of further deepening to 42 feet if necessary.

The port improvements at Havre continued during the year and not only was it determined



(From Engineering Magazine.)

CROSS SECTION OF QUAY WALL AT PARÁ

larging this channel to a depth of 40 feet at mean low water and a width of 2000 feet, the estimated excavation being about 42,500,000 cubic yards of material for the length of seven miles. The work was done by powerful dredges during 1909, four of these being employed, and at the close of the government fiscal year 42,911,791 cubic yards of sand, mud, and stones had been excavated, at an expense of \$4,197,932.47. In the fiscal year 1909, 10,786,638 cubic yards of sand and mud and 6889 cubic yards of stone mixed with sand were excavated. In 1909 the work was about three-quarters completed and a channel with a depth of 40 feet at mean low water and a width of 1000 feet was secured easily navigable at mean low tide by ships of 37 feet draft. It was first buoyed for navigation in September, 1907, and its use was restricted to daylight navigation by ships of 29 feet draft or over, or more than 600 feet in length. Under authority of the Act of Congress of March 3, 1909, regulations were issued permitting use of the channel by day or night by all steamships or passenger steamers not having tows regardless of size; and straightway the channel was used by practically all of the transatlantic lines and many of the others. The entire cost of the improvement of New York Harbor up to 1909 was less than 1 per cent. of the increase in valuation of foreign commerce alone for the port since the improvement began, and less than one-half of 1 per cent. of the an-

nual value of foreign commerce in 1908. During 1908, 124 different ships drawing 27 feet or more made 484 trips outward and 137 trips inward. Prior to the improvement none of these ships could have crossed the bar to enter or leave the harbor except at extreme high tide or after lightering.

The port of Antwerp was undergoing considerable improvement in 1909. The Rogers lock, which affords access to the more important basins, is 580½ feet in length, 79 feet in width, and has 33½ feet of water over the sill. During the year a contract was let for dock works in the first part of the great scheme of harbor improvements adopted in 1907, involving the sum of \$3,400,000, and the excavation for two of the docks was commenced. The rivers in connection with the Belgian harbors require great attention and this has been found especially true at the port for large vessels at Zeebrugge, where a depth of 26 feet is maintained only by considerable dredging. This port, which is connected with Bruges by a maritime canal, has increased its business within three years from 441 vessels of 258,951 tons to 839 vessels of 500,154 tons in 1908.

During the year active progress was being made with the extensive improvements of the port of Pará, Brazil, which are designed to afford ample commercial facilities for this important seat of the export rubber trade. Pará, being on the only navigable mouth of the Amazon, the third seaport of Brazil in point of commerce, is situated on an estuary 65 miles from the open sea, but the deep water navigable

for ocean steamships does not come nearer to the city than three or four miles, so that at the old quay there was only 19.7 feet of water at mean low tide. Accordingly the commerce involving annually between \$40,000,000 and \$50,000,000 of exports and imports often had to be lightered and handled more than once. The work was under the direction of M. L. Quellenec, chief engineer of Ponts et Chaussées of France, and consulting engineer of the Suez Canal, with E. L. Corthell, the American engineer, as consulting engineer. The general plan of work involved the construction of a quay wall 3280 feet long with a depth of water in front of it of 30½ feet for deep-sea ships and a quay wall 1640 feet in length with a depth of water of 10 feet for Amazon river boats, and 3875 feet of shallow walls for small boats and for the general improvement of the city. The foundation of the quay wall was laid in hard clay in which a trench had been excavated. On this was placed riprap stone and above massive concrete blocks. Between the quay wall and the shore the space was filled with the sand excavated by the suction dredges from the channel and the deep-water basin in front. On the quay walls will be traveling cranes, and behind warehouses and railroad tracks, it being the intention to erect fireproof warehouses the entire length of the port. The work is being undertaken by an American corporation known as the Port of Pará Company, which is guaranteed 6 per cent. interest on the capital invested and a concession extending until 1973, and to 1996 in case the second division of the port is built, with a proviso for the purchase of the work by the government.

In addition to Pará further important harbor works in South America were undertaken at Buenos Ayres to accommodate the rapidly growing trade of this port. Bids were invited during the spring of 1909 for the construction of a new wet or tidal dock which will cover 200 acres and have a depth of 30 feet at low water. The depth of the approach channel was increased from 21 to 26 feet.

During the year extensive harbor works were in progress at Madras with the aim of making the harbor one of the best in India. This involved the construction of a breakwater 1500 feet in length to protect a new entrance and the pierhead of this breakwater formed a difficult engineering problem on account of its exposure. Accordingly a large square iron caisson was constructed and towed to the site and after being loaded was sunk in place. The caisson was filled with concrete so as to possess the greatest strength and on it was placed a superstructure of masonry.

HARE, WILLIAM HOBART. An American Bishop of the Protestant Episcopal Church, died October 23, 1909. He was born at Princeton, N. J., in 1838, and received his early education in the Protestant Episcopal Academy in Philadelphia. He entered the University of Pennsylvania, but remained in college only two years, leaving to take up the preparation for the ministry. During his years of study he taught school. In 1859 he received his deacon's orders and was ordained a priest in 1862. He was made assistant in St. Luke's Church in Philadelphia, and soon thereafter became rector of St. Paul's, and subsequently of Chestnut Hill, both in Philadelphia. He became in 1870 secretary and general agent of the foreign committee

of the Domestic and Foreign Missionary Society. In 1873 he was consecrated Bishop of Niobrara, which diocese in 1883 was enlarged and made coterminous with the newly-created Territory of South Dakota, the name of which it assumed.

HARRIMAN, EDWARD HENRY. An American financier and railroad builder, died September 9, 1909. He was born at Hempstead, L. I., February 25, 1848, the son of the Rev. Orlando Harriman, at that time rector of St. George's Episcopal Church in Hempstead. He was one of six children, four boys and two girls. The circumstances of his father precluded any attempt at collegiate education, and all the formal instruction that he obtained was two years in a church school to supplement a course in the public schools. Mr. Harriman's business training began while he was still a youth, when he obtained the position of a clerk in the office of a Wall Street broker. At about the same time his mother fell into a considerable legacy, but this did not change the young man's habits of industry. So great was his ability and diligence that in the year of his majority he was able to purchase a seat in the New York Stock Exchange. This was in 1870. Mr. Harriman did not begin his Stock Exchange career, as is customary, as a junior partner in an exchange house, but engaged in the much more difficult business of floor trader. This was during the period of the most daring operations of Jay Gould, Commodore Vanderbilt, Daniel Drew and their contemporaries. Mr. Harriman thrived in business while men of greater experience failed. It was early demonstrated that not one of his generation was a better reader of the stock market than he, and none quicker to see and grasp an opportunity. During this period Mr. Harriman made many fortunate acquaintances. Among these was Stuyvesant Fish, who began his career in the financial district at about the same time.

In a few years Mr. Harriman organized the Stock Exchange firm of Harriman and Co., which still exists, although Mr. Harriman long before his death retired from it. He remained a member of the Stock Exchange, however, as long as he lived. In 1883 Mr. Fish was made vice-president of the Illinois Central Railway, and as soon as it was possible he used his influence to secure the election of Mr. Harriman to the Board of Directors. The latter at once turned his genius for analysis to mastering all the business of conducting and maintaining railroads. He was soon familiar with all the departments of the railway business, including costs of supplies and operation and all the details of administration. He soon became known as an expert in railroad matters and before he had long been connected with the Illinois Central he had convinced the great financial house of Kuhn, Loeb and Co. that he had a genius for railway management, and they were willing to accept his judgment on many railroad propositions.

Mr. Harriman's vision was of vast range and he cherished the dream of a railroad empire. The opportunity for realizing this came in that period of the first administration of President McKinley when the financiers of Wall Street were engaged in restoring the wrecks of suspended railroads. One of these was the Union Pacific, which seemed to most reorganizers beyond the possibility of resuscitation. Mr. Har-



Courtesy of "Engineering Magazine"

THE HARBOR IMPROVEMENT AT PARÁ, BRAZIL. DREDGING AND CONSTRUCTING THE QUAY WALL

riman had studied the situation in connection with this road closely, and he succeeded in persuading Kuhn, Loeb and Co. to agree to his plans in connection with it. When the road was sold at auction by the government on account of its failure to pay its liabilities, these bankers had a syndicate organized and made the successful bid. Among the members of this syndicate were the Vanderbilts, Goulds, James Stillman of the City Bank, and Mr. Harriman. At that time he was little known, and those who were lacking in intimate knowledge of his ability considered him the least important member. The syndicate paid the government about \$60,200,000 for the 1800 miles of poor track and worn-out equipment then owned by the company, and paid an additional sum to bondholders and for the purchase of minor tributary lines. The company was then reorganized. It was Mr. Harriman's plan to merge this railroad with the Chicago and Northwestern. The Vanderbilt interests, however, would not undertake this, and Mr. Harriman and Kuhn, Loeb and Co. undertook to finance the operation alone. They secured the influence of James Hazen Hyde, vice-president of the Equitable Life Insurance Company, whom Mr. Harriman had placed on the Board of Directors. Mr. Hyde took a large block of the preferred stock for the Equitable Company and subscribed also individually. This operation later became famous in the insurance investigations of 1907. Under Mr. Harriman's management the Union Pacific Railroad became prosperous. Largely through his efforts enough credit was obtained to float another issue of securities and acquire the Oregon Short Line and the Oregon Railway and Navigation Company. The Oregon Short Line had a great value apart from its usefulness as a railroad on account of its broad, comprehensive charter. This permitted Mr. Harriman to accomplish what came to be considered some of his most extraordinary feats in "high finance." This line became the favorite "holding company" for the Union Pacific system and permitted it to make acquisitions of other lines that otherwise would have been impossible. In 1901 the controlling interest in the Southern Pacific was turned over to the Oregon Short Line. This line was immensely superior to the Union Pacific in mileage and resources, and with it came the Central Pacific, which it controlled. This gave Mr. Harriman a direct central line to the Pacific coast at San Francisco. In the meantime Mr. Harriman had become interested in the Kansas City Southern, a railroad extending from Kansas City to the Gulf at Galveston, and he had also, with the assistance of Kuhn, Loeb and Co., acquired control of the Chicago and Alton.

After having secured the Union Pacific, Southern Pacific, and Chicago and Alton by the spring of 1901, Mr. Harriman and his associates in that year took objection to the purchase of the Chicago, Burlington and Quincy by James J. Hill and his associates. They insisted that this acquisition threatened the community of interest among roads in the West and Northwest, and retaliated on Mr. Hill by endeavoring to wrest the Northern Pacific from his control. This contest led to the famous Northern Pacific corner, which culminated on May 9, 1901, when the price of Northern Pacific went to \$1000 and the entire stock market went to pieces. When the contest ended the Hill party had a majority of the common stock and was in control of the

road. All interests finally combined their holdings of Northern Pacific, Great Northern and Burlington in a new holding company, called the Northern Securities Company. This company was subsequently dissolved by the courts under the Sherman Anti-Trust Law. This outcome left the Harriman party in control of none of these three roads, and in this respect was a defeat for Mr. Harriman. On the other hand, the subsequent appreciation of the Great Northern and Northern Pacific enriched the Union Pacific treasury by an amount estimated at more than \$100,000,000. The bulk of these stocks sold at a handsome profit in 1906 and Mr. Harriman reinvested the proceeds in stocks of other roads. Most of the money used by Mr. Harriman and his associates for this fight with the Hill interests had been obtained by an authorized issue of \$100,000,000 Union Pacific convertible bonds, but shortly before the contest Mr. Harriman had been elected a trustee of the Equitable Life Insurance Society and had borrowed \$2,700,000 from that institution, presumably to pay in part his share of the contest. From that time until the life insurance investigation in 1905 he increased his influence in the Equitable Company and when the difficulties between James Hazen Hyde and President Alexander came to a head, Mr. Harriman endeavored to secure the control of the company. He was thwarted in this endeavor by Thomas F. Ryan, who bought up the control unknown to Mr. Harriman. Neither the defeat in the Northern Pacific corner nor in the Equitable affair apparently discouraged Mr. Harriman.

In 1903 he came into conflict with James R. Keene, at that time counted the most redoubtable market operator of his time. Mr. Keene and his son-in-law, Talbot J. Taylor, had a pool in Southern Pacific and were endeavoring to force the management to declare a dividend on the stock. Mr. Harriman's party controlled about half of the Southern Pacific stock through the Union Pacific and they released \$30,000,000 of this stock from the Union Pacific treasury. As a result the Keene pool was smashed.

The transaction of the Chicago and Alton Railroad referred to above was perhaps the most notable with which Mr. Harriman was connected. It was proved in the investigation of the Interstate Commerce Commission noted below that a syndicate organized by Harriman paid \$40,000,000 for the road, and in the course of reorganization converted \$8,000,000 of old bonds and \$22,000,000 of old stock into \$54,000,000 of new bonds and \$40,000,000 of new stock. It was shown that the syndicate had received or voted itself a 30 per cent. dividend soon after the reorganization and had taken the new company's 3 per cent. bonds at 65 per cent. and sold them to life insurance companies, among others, at 96. The defense of Mr. Harriman was that the new capitalization was justified by the back earnings put into the property in capital expenditure but never capitalized and in the new money spent on the road in improvements and extensions.

In 1906 the Interstate Commerce Commission instituted a rigid investigation into the Harriman lines. Mr. Harriman and others testified on the stand early in 1907. In this investigation it came out for the first time how broad had been the scope of Mr. Harriman's ambition in the railroad field and how successful he had been in spreading his influence across the con-

minent. By the sale of the Great Northern and Northern Pacific stock and the reinvestment of the proceeds, the Union Pacific and its controlling companies had secured, at an expenditure of about \$150,000,000, \$28,000,000 worth of Illinois Central, \$39,500,000 worth of Baltimore and Ohio, \$14,000,000 worth of New York Central, \$10,000,000 worth of Atchison, and smaller blocks of other railroads. It appeared also that Mr. Harriman's power as president of the Union Pacific and Southern Pacific was practically supreme. He was shown to be in absolute control of the system, the directors having deputed the entire power to the executive committee and that committee having by resolution turned it over to Mr. Harriman.

The last of the great contests carried on by Mr. Harriman was the successful attempt to oust Stuyvesant Fish, his former friend, from the presidency of the Illinois Central. This was accomplished in 1907 after a bitter fight. Following this, Mr. Harriman's relations with his rivals were more amicable. Harmonious relations were established in the railroad and banking fields during the troubled times of the panic of 1907. The most important of his operations was perhaps the settlement of the old strife with the Gould interests dating from the inception of the Gould scheme for a transcontinental line. Three of the Gould Eastern and one of the Western lines were unable to weather the panic of 1907, and Mr. Harriman and Kuhn, Loeb and Co. were applied to for help. This was given on terms that were satisfactory to the Harriman party. Following the panic, Mr. Harriman coöperated in measures for the improvement of the Erie Railroad, turned the Central of Georgia over to the Illinois Central and became a director in the New York Central. He also made a close traffic connection between the Union Pacific and Kansas City Southern.

In politics Mr. Harriman was counted very influential in California during the last ten years of his life. He had also close relations with the leading politicians of New York State and up to 1904 was on friendly terms with President Roosevelt. In 1907 a letter written in 1904 by Mr. Harriman to Sidney Webster, in which Mr. Harriman complained of his treatment at the hands of the Roosevelt administration after he had raised \$225,000 for the Roosevelt campaign fund in 1904, was stolen and made public by a discharged stenographer, who had kept his notes. This drew from President Roosevelt an angry reply in which he referred to Mr. Harriman as "an undesirable citizen." Several sharp retorts followed between them and a letter written by President Roosevelt to Mr. Harriman on October 14, 1904, was made public. In this President Roosevelt asked for Mr. Harriman's help as a "practical man" in the campaign then in progress. In the same correspondence it also came out that in 1906 Mr. Harriman had refused to contribute to the Republican Congressional campaign fund.

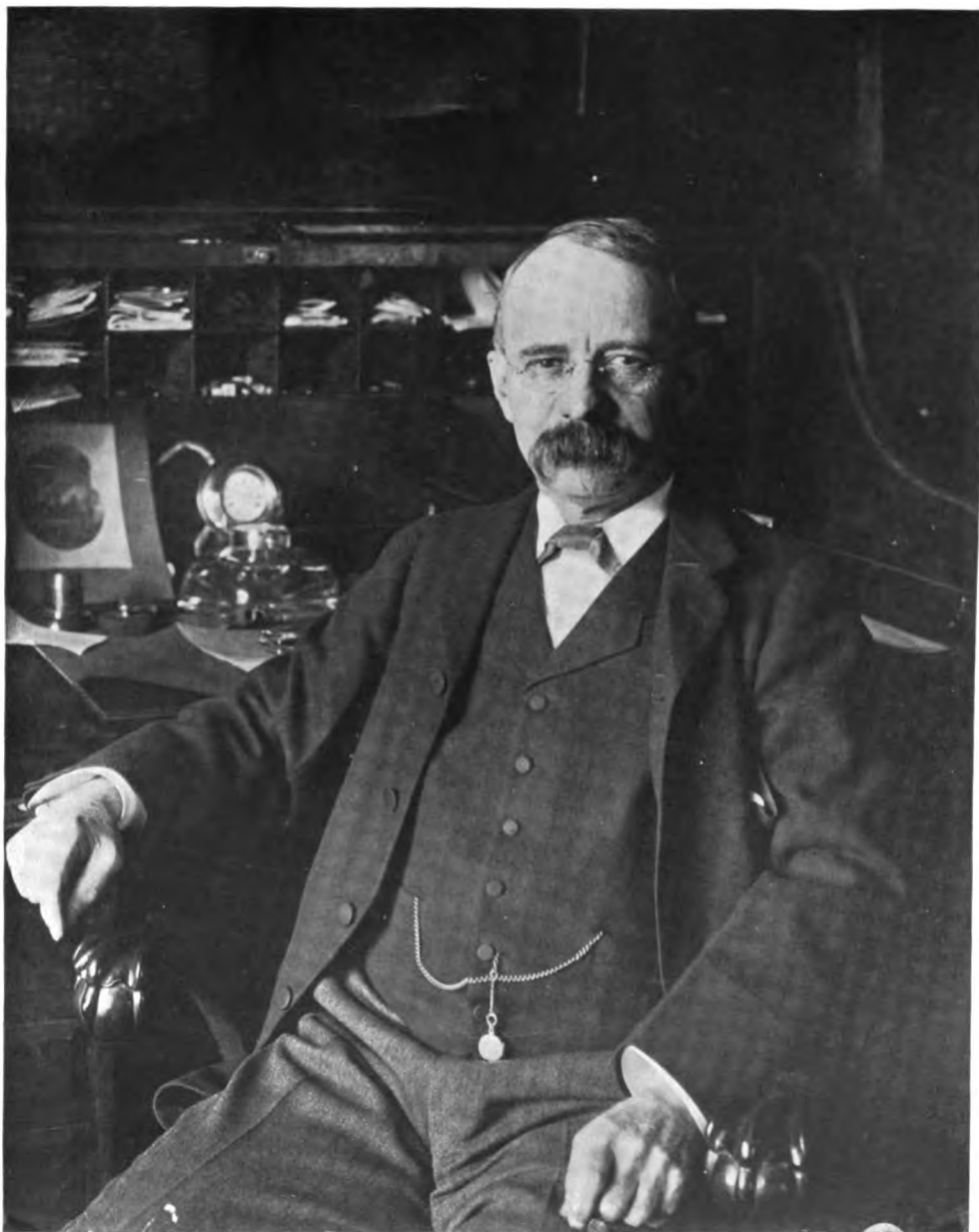
At the time of his death Mr. Harriman controlled, by the ownership of a majority of the stocks and bonds, the following railroads: The Union Pacific, the Southern Pacific, the Southern Pacific and Mexico, the San F. L. A. and St. L., the St. Joseph and Grand Island, Illinois Central and Central of Georgia. He had a dominant interest in the Baltimore and Ohio and the Delaware and Hudson. He had also important interests in the Erie, New York Central, and W. and L. E. P. T. He held lesser in-

terests in the Atchison, Chicago and Northwestern, and St. Paul. Besides these, he was interested in many financial institutions, including the Equitable Trust Co., the Guaranty Trust Co., National City Bank, Night and Day Bank, Railroad Securities Co., and Western Union Telegraph Co. Of transportation companies other than railroad companies he was in control of the Pacific Mail Steamship Company, the Portland and Asiatic Steamship Co., and the Wells Fargo and Co. Express. A week prior to his death Mr. Harriman made public plans for new construction and development of railroads and other transportation companies, which contemplated the expenditure of \$300,000,000. The most important of these plans was the completion of the road of the Southern Pacific Company to Mexico, and other Mexican projects.

Mr. Harriman was a man of slight physique and in the last two years of his life was almost constantly in poor health. Only his marvelous vitality permitted him to persevere in the execution of his great plans. He made several tours of the world in search of health and had returned from a visit to baths in Austria just previous to his death. He had considerable interest in scientific matters, and at his expense was equipped and carried out the Harriman Expedition to Alaska in 1899. He also gave away large sums of money, but so unostentatiously that little was known of this by the public. He purchased a great estate at Arden, near New York City, and had under construction what will probably be the finest country house in America. His entire estate was left to his wife.

HARRIS, WILLIAM ALEXANDER. An American public official, from 1897 to 1903 United States Senator from Kansas, died December 20, 1909. He was born in Loudoun County, Va., in 1841 and graduated from Columbian College in 1859 and from the Virginia Military Institute in 1863. He served in the Civil War, being for three years assistant adjutant-general and an ordnance officer. Following the war he removed to Kansas and was construction engineer for the Union Pacific Railway Co. He became interested in politics and was a member of Congress from 1893 to 1895. In 1897 he was chosen United States Senator, serving until 1903. In 1907 he was Democratic candidate for Governor of Kansas.

HARRIS, WILLIAM TORREY. An American educator and public official, died November 5, 1909. He was born at Killingly, Conn., in 1835. He attended Yale College for two and a half years but did not graduate. That institution, however, conferred on him in 1869 the degree of A. M., and in 1895 the degree of LL. D. From 1857 to 1867 he was assistant superintendent in the St. Louis public schools and three years following was superintendent, resigning on account of ill health. He settled at Concord, Mass., where he became a lecturer at the School of Philosophy. In 1867 he established in St. Louis the *Journal of Speculative Philosophy*, of which he was conductor up to the time of his death. In 1880 he represented the United States Bureau of Education at the International Congress of Educators at Brussels, and also at the Paris Exposition in 1889. In 1889 he was appointed United States Commissioner of Education, which office he held until 1906. He was chief editor of the "Appleton School Readers," and also later edited an educational series for D. Appleton & Co. He was editor also of the De-



Copyright by Underwood & Underwood, New York

E. H. HARRIMAN

partment of Philosophy in *Johnson's Encyclopedia* and wrote many important articles for that work. He was in addition editor-in-chief of *Webster's New International Dictionary*, which was published just prior to his death. Dr. Harris wrote much on philosophical and educational subjects. Among his published works are: *Introduction to the Study of Philosophy* (1889); *The Spiritual Sense of Dante's Divina Commedia* (1889); *Hegel's Logic, a Book on the Genesis of the Categories of the Mind* (1890); and *Psychologic Foundation of Education* (1898).

HARVARD UNIVERSITY. An institution of higher learning at Cambridge, Mass., founded 1636. The attendance in 1908-09 was 4915; in the fall of 1909, 5100. In Harvard College, the Graduate School of Applied Science, the Graduate School of Arts and Sciences, the Graduate School of Business Administration, the Divinity School, the Law School, and the Dental School there was an increase in attendance. The Lawrence Scientific School and the Medical School showed a decrease. In December, 1909, the Governing Boards of the University adopted the following scheme for modifying the choice of electives in Harvard College:

A standing committee of nine is to be appointed from the Faculty of Arts and Sciences with power to associate with itself a large number of advisers for students; this committee is to prepare general rules for the choice of electives to be approved by the Faculty, based upon the principle that the student must take a considerable amount of work in some one field, and that the rest of his course must be well distributed. At the end of his first year in college each student is to be required to present to his adviser a plan of study for the remainder of his college course, this plan to conform to the general principles laid down by the committee, unless the committee is satisfied that the student has sufficient grounds for departing from those principles; the student's plan can be subsequently changed only for a course satisfactory to the committee.

In 1909, 1017 degrees were conferred in all departments of the University. Among the gifts to the University in the year 1908-09 may be mentioned the following:

One million dollars from the estate of Gordon McKay to promote applied science; \$100,000, as the 25th anniversary fund of the Class of 1884; \$50,000, bequest of Charles F. Farrington to advance the knowledge of infectious or communicable diseases; \$260,000 for the Germanic Museum; \$150,000 for the maintenance of religious services at the University; \$30,000 from Henry L. Higginson; \$5000, bequest of Robert Henry Harlow for assisting poor young men of excellent moral character in the academic department.

George Foote Moore, Professor of the History of Religion, was chosen by the German Department as Visiting Professor at the University of Berlin. Professor Édouard Meyer, lecturing on Ancient History, was Exchange Professor at Harvard.

Professor Bliss Perry, of the Department of English, was appointed lecturer at the University of Paris and other French universities, on the Hyde Foundation for the year 1909-10.

The Cercle Français lecturer for the year 1909-10 was M. Émile Boutroux.

The resignation of President Charles W. Eliot

took effect on May 19, 1909. At this time Abbott Lawrence Lowell, Eaton Professor of the Science of Government, became president of the University. The inaugural ceremonies took place October 6 and 7, 1909.

The endowment of the University in July, 1909, was \$22,716,759.24.

HAUSRATH, ADOLF. A German Protestant theologian, died in August, 1909. He was born in Karlsruhe in 1837, and was educated at the universities of Jena, Göttingen, Berlin and Heidelberg. In 1867 he was appointed professor of ecclesiastical history at Heidelberg. His most important published works include *Der Apostel Paulus* (second ed. 1872); *Martin Luthers Romfahrt* (1894); *Alte Bekannte* (1899-1901). Under the name of George Taylor he wrote a number of historical novels, among them *Antinous* (1880); *Klytia* (1883); *Jetta* (1884); *Elfriede* (1885); and *Peter Maternus* (1898).

HAVERHILL, MASSACHUSETTS. See ELECTIONAL REFORM.

HAWAII or **HAWAIIAN ISLANDS** (formerly SANDWICH ISLANDS). A Territory of the United States comprising a chain of islands in the Pacific Ocean, forming the extreme northern group of Polynesia. The capital is Honolulu on the Island of Oahu, 2100 miles from San Francisco, 4803 miles from Manila, and 3850 miles from Salina Cruz, the Mexican Pacific terminus of the Tehuantepec Railway.

AREA AND POPULATION. The total area of the Hawaiian Islands is 6,449 square miles, and the area of the inhabited islands is as follows: Hawaii, 4015 square miles; Maui, 728 square miles; Kahulawe, 69; Molokai, 261; Lanai, 133; Oahu, 600; Kauai, 544; and Niihau, 97. The last official census of the islands was taken in 1900, when the total population was 154,000. Conditions since that time make it difficult to estimate the present population. It is probably 170,000, divided about as follows: Orientals, 95,000, including 72,000 Japanese, 18,000 Chinese, and 5000 Koreans; Latins, 27,000, including 23,000 Portuguese, 2000 Spanish, and 2000 Porto Ricans; Polyneians, practically all Hawaiians and part Hawaiians, 35,000; Teutons, practically all of American, British, German and Norwegian descent, 12,000; others, 1000.

AGRICULTURE. Hawaii is mainly an agricultural country, but the conditions are such, owing to lack of knowledge of tropical agriculture, distance from the world's markets, tariffs, and other causes, that thus far only few products have been produced on a sufficient scale for export in appreciable quantities. Much enterprise is being shown, however, in experimentation and a growing disposition toward the adoption of scientific methods. Marked progress has been made in knowledge of possible crops and methods of cultivation. Especially is this true of the sugar industry, in which the scientific cultivation has resulted in an enormous product. The sugar industry far exceeds all others combined in the value of its output. It is conducted mainly on a large scale, although there are a number of planters who raise cane and sell it to the large producers. The greater portion, however, even of that raised under the general supervision of the large producers, is raised under contracts, more or less of the

nature of profit-sharing agreements, under which the planters perform certain functions varying with local conditions, and the laborers do most of the work and sell the cane to the planters at agreed prices, which vary with the price of sugar and the amount of cane required to produce a given quantity of sugar. There were employed in the enterprise on January 1, 1909, 44,348 persons comprising 570 Americans, 3620 Portuguese, 685 Spanish, 370 other Europeans, 1080 Hawaiians, 1917 Porto Ricans, 118 Filipinos, 31,207 Japanese, 2942 Chinese, 1743 Koreans, and 96 others. Since the beginning of 1909, the percentage of non-Asiatics further increased, owing to the recent strikes among the Japanese. More than \$70,000,000 is invested in the sugar industry, and 215,000 acres in the island are cultivated in cane. About half the land is irrigated. The annual value of the crop is over \$40,000,000, and the crop of 1909 yielded about 530,000 tons, which was a slight increase over the crop of 1907, which was 521,123 tons. The value of the sugar, including refined and brown, exported to the United States in the fiscal year ending June 30, 1909, was \$37,632,821, as compared with \$39,816,082 in 1908. Rice is produced in considerable quantities in the islands, mainly by the Chinese, on small plantations and usually upon land leased at high rentals. About 11,000 acres are cultivated, yielding as a rule two crops a year, the entire crop being valued at \$2,500,000, most of which is consumed in the Territory. The value of the export of rice to the United States for the fiscal year ending June 30, 1909, was \$255,210, a marked increase over the value of the export product of 1908, which was \$140,768.

The coffee industry is one of the oldest on the islands, and was at one time conducted largely by Americans. Owing to low prices, it has fallen largely into the hands of Japanese. The output is variable. About 4500 acres are cultivated, averaging 600 to 700 pounds per acre. The value of the coffee exported to the United States in 1909 was \$211,535, from 1,753,119 pounds, compared with the export of 1,310,432 pounds valued at \$157,137 in 1908. The pineapple industry is the most advanced of the newer minor industries of Hawaii. It has large promise and is especially suitable for American settlers. Its growth has been rapid since the extension of the American protective tariff to these islands, when territorial government was established. The pineapple schedule in the tariff bill of 1909 was most gratifying to the people of Hawaii. The export of fresh fruits has not grown much, but it is expected to grow with the increase of transportation facilities, and of knowledge as to methods of packing, shipping and marketing. In the year ending May 31, 1909, 411,000 cases were exported, which was more than double the pack of the preceding year. The area planted is about 5500 acres, an increase of about 1000 acres during the year. The rubber industry is still in an experimental state in the islands, although the experiments of 1908 in tapping and in the use of temporary fertilizers during the tapping period have been most promising. One of the most marked and hopeful industrial features of the past year was the increase of the tobacco and cotton industries. Both these are results, in large measure, of the work of the Federal Experiment Station, and bid fair to play an important part in the diversification

of industries and the encouragement of small proprietors (see AGRICULTURAL EXPERIMENT STATIONS). Two tobacco companies have been incorporated with a stock of \$50,000 and \$100,000 respectively, and have begun operations on the Island of Hawaii. It is expected that the crop of 1909 will amount to 750 bales. The sisal industry is important. Five companies are in operation, and about 3000 acres are under cultivation. The output in 1908 was 100 tons, and the output of 1909 is expected to be 300 tons. The honey industry, which is comparatively new, is steadily growing, and it now represents an investment of \$200,000, and yields annually about \$70,000 worth of honey and wax. Bananas are exported to some extent. The cultivation of cocoanut for purposes of exportation has been begun on a more extensive scale.

The cattle on the islands number about 130,000 head, valued at about \$1,700,000. The cattle ranches suffered from the prolonged drought in 1908, which continued in 1909, and resulted in the loss of 15,000 head of cattle. In consequence it was found necessary for the first time in many years to import beef in the early part of the year. There are about 100,000 sheep valued at \$130,000 in the islands. The exports of wool amount to about \$50,000 annually.

MANUFACTURING. The principal manufactures of the islands are incidental to agricultural industries. The principal manufactory of the islands is that of the Honolulu Iron Works Company at Honolulu, of which sugar machinery is its specialty. On the sugar plantations there are numerous pumping plants and there are about ten pineapple canning factories, a number of coffee mills, rice mills, and sisal and manioc mills. There are also several saw mills for lumber and railroad ties and several planing mills.

COMMERCE. The aggregate imports and exports for the year ended June 30, 1909, amounted to \$61,946,484, an apparent slight decrease of \$277,695 from the amount \$62,224,179 for the previous year, which was by far the largest up to that time. The amount in 1908, however, includes, while that for 1909 excludes, specie shipped from the mainland. Omitting such specie from both, the decrease is only \$143,572. The table given on the following page shows the imports and exports by countries for the fiscal years 1908-9.

The principal exports to the United States in 1909 were as follows: Sugar, raw, 983,092,127 pounds, valued at \$35,487,912; refined, 39,773,800 pounds, valued at \$2,144,830; coffee, 1,763,119 pounds, valued at \$211,535; rice, 5,823,585 pounds, valued at \$255,210; fruits and nuts, valued at \$1,446,792.

The steady increase for some years past in the tonnage of vessels entered and cleared, continued during the fiscal year 1909, when the amount was the largest thus far, or 1,159,118 tons entered and 1,159,749 cleared, exclusive of vessels engaged in inter-island traffic, which is nearly as much additional.

TRANSPORTATION. The matter of transportation facilities is of the greatest importance. There is need of more railroads upon the several islands, at least one good harbor in each island and two on the largest, the reduction of freight and passenger rates, and especially an increase in available accommodations for passengers and

IMPORTS AND EXPORTS, BY COUNTRIES, FISCAL YEARS 1908 AND 1909.

Country.	Imports		Exports	
	1908	1909	1908	1909
Australia	\$348,806	\$315,502	\$3,331	\$7,054
Other British Oceania	64,569	63,214	1,814	5,554
British India	699,467	600,230	.....	.....
Canada	26,093	17,467	15,625	35,383
Chile	491,352	385,104	.....	.....
France	31,479	14,392	260	25
Germany	310,134	272,243	10,025	3,794
Hongkong	324,107	279,749	8,881	2,934
Japan	1,874,670	1,722,796	541,554	15,011
United Kingdom	481,269	303,089	2,073	2,583
Other foreign	30,463	59,788	14,077	11,814
Total foreign	4,682,399	4,033,574	597,640	84,152
United States	15,303,325	17,391,406	41,640,815	40,437,352
Grand total	19,985,724	21,424,980	42,238,455	40,521,504

perishable goods, particularly fresh fruits, between the Territory and the mainland. Considerable progress was made in this direction during 1909. A number of steamers were added in the trans-Pacific traffic, and traffic between the Territory and the mainland, with increased accommodations for fruit, and, to some extent, for perishable goods. The passenger accommodations, however, are still very inadequate. The harbor of Honolulu has undergone enlargement and improvement, and the conditions there are, on the whole, excellent. Inter-island traffic is conducted almost exclusively by the Inter-island Steam Navigation Company. Five steamers regularly visit all ports of consequence in the territories. This company has fifteen steamers. Five steamship companies are engaged in traffic between the Territory, the mainland and Mexico. A few American sailing vessels continue to carry sugar around Cape Horn. The most extensive railroad is on the Island of Oahu, with nearly 100 miles of main line and branches. On the Island of Hawaii, the Hilo Railroad Company has 40.35 miles of main line and branches. There was only one street railway, that of the Honolulu Rapid Transit and Land Company, Honolulu, with just 24 miles of line. This company carries nearly 8,000,000 passengers yearly.

PUBLIC LANDS. The public lands of the islands comprise about 1,700,000 acres, and of this, much is so high, or so precipitous, or so recently formed by volcanic action, or so dry and rocky or otherwise unsuitable to marketable crops, that comparatively little is arable in its natural condition, and in the present state of knowledge. The Governor in his annual report recommends the amendment of the present land laws. They were enacted in 1895 and were modeled largely from the New Zealand laws, and conditions which made them suitable at that time have since changed. The last legislature provided that the entire proceeds of land sold for settlement purposes might be used for the construction of roads, opening up and land for such purposes. Four tracts, aggregating 101,614 acres, have been set apart during the year as forest reserves, making the total present area of such reserves in the islands, 545,746 acres.

FINANCE. The bonded debt of the Territory at the beginning of the fiscal year 1909 was \$3,979,000, which was reduced during the year by the payment of \$20,000 in 5 per cent. bonds, leaving a total bonded indebtedness of \$3,959,000 at the close of the year. The receipts for

the year were \$3,051,526, an increase of \$381,778 over the amount for the previous year. The expenditures were \$2,934,984, an increase of \$117,605 over the amount for the previous year. The receipts exceeded the expenditures during the last year by \$116,542. The principal sources of revenue were as follows: Licenses, \$217,958; real property tax, \$668,721; personal property tax, \$678,886; income tax, \$389,500; water works, \$147,140; land revenue, \$185,268. The chief expenditures were for departmental expenses, \$1,474,052; payments to the city and county of Honolulu, \$534,166; payments to the county of Hawaii, \$233,740.

EDUCATION. The public schools are under the Department of Public Instruction, consisting of the superintendent and six commissioners. The enrollment in all schools for the school year 1909 was 24,889, an increase of 1444 for the year. Of these, 10,507 were in public schools and 5382 in private schools. Teachers numbered 493 in the public schools and 269 in private schools. The actual attendance at the public schools was 91 per cent. of the enrollment. The largest increase in all schools, 902, was in Japanese pupils, the next in Chinese, the next in Portuguese, and the next in part Hawaiian. The expenditures for public school purposes for the fiscal year 1909 amounted to \$532,908. The principal nationalities of the scholars in the schools are as follows: Japanese, 6415; Portuguese, 4696; Hawaiians, 3681; Chinese, 2830; Americans, 972; Porto Ricans, 438. The College of Agriculture and Mechanic Arts, although established a little more than a year, has made much progress. Negotiations are practically completed for obtaining an additional 30,000 acres of land for a permanent site, which, with the land already obtained, will make 73,000 acres of a value of nearly \$100,000. The College is becoming well equipped with the best apparatus and machinery. The faculty has been increased to twelve members, all of whom are specialists in their several lines of work. During the year there were 102 students in prescribed courses. These courses include general science, agriculture, engineering and household economics.

LABOR AND IMMIGRATION. The departures of Japanese during the year 1909 far exceeded the arrivals, which are now confined mostly to returning Japanese, or relatives of Japanese already in the Territory. The decrease of the Chinese population, due to the departures and non-arrivals, is largely offset by births, and also by the arrival of Chinese children for the

purpose of attending school. The Portuguese are increasing rapidly; the pure Hawaiians are slowly decreasing, and part Hawaiians are increasing.

The principal feature in immigration and labor matters during 1909 was the provision by the legislature for a special fund to be raised by an additional tax of 2 per cent. upon incomes of over \$4000, three-fourths of which is to be used for immigration purposes and the other one-fourth for conservation purposes. The entire proceeds are expected to amount to from \$300,000 to \$400,000 a year. With this fund the Territorial Board of Immigration has dispatched a special agent to arrange for the transportation of such Portuguese and other European immigrants of desirable classes as desire to go to Hawaii. A serious strike occurred on a number of plantations on the island of Oahu in May and lasted about three months. About 7000 laborers, chiefly Japanese, were involved. The strike was settled on the 1st of August. During its progress there were serious riots on several of the plantations, and on June 17 indictments were found against several rioting Japanese laborers: The government of Japan declined to intervene in the trouble.

POLITICS AND GOVERNMENT. During the year the regular biennial election was held for the election of a Delegate to Congress, members of the Territorial legislature, and city and county officials. Among the notable features of the election was the steady and rapid increase of Portuguese voters, the steady, though comparatively slow increase of Chinese voters, and the small number of Japanese voters, notwithstanding the large Japanese population. At the election four Portuguese were elected to the House of Representatives. The total vote cast for Delegate to Congress was 12,316, of which the Republicans cast 5698, the Democrats 3824, and the Home Rule Party 2794.

The fifth legislature of the Territory began its regular biennial session on February 17, 1909, and was in session the allotted period of sixty days. The number of bills passed, 152, was the largest passed by any legislature in Hawaii. Much attention was paid to the subject of finance, and measures were taken which went far toward establishing a satisfactory status for both territorial and county finances. Measures were passed also inaugurating a new policy in regard to the handling of leprosy, which it is believed will within a reasonably short period result in a practical eradication of that disease, if it can be accomplished at all. Provision was also made for inaugurating a campaign by the Territorial Board of Health against tuberculosis. The other bills included one of an advanced character in regard to juvenile courts, one providing for indeterminate sentence, and one for the establishment of a territorial library. Some of the best work of the legislature was done in defeating undesirable bills, notably a strenuously pressed amendatory bill, which would have greatly impaired the efficiency of an excellent liquor bill, passed by the previous legislature.

On February 16, the United States War Department decided to establish a large military station at Hawaii, and make it second in the Department of the Philippines in importance. The construction of a naval station at Pearl Harbor is proceeding under the Navy Department. Rapid progress was made during the

year under a contract entered into in December, 1908, for the extensive work of widening, deepening and straightening the long entrance channel. A contract was made during the year for the construction of the dry dock.

HAY. The hay crop of 1909 in the United States was very satisfactory, and was generally harvested under conditions insuring good quality. In the Southwest and in parts of the East, the crop was short as a result of drouth. The total production was about 65 million tons, the acreage approximately 45,750,000 and the total farm value on December 1 about \$670,000,000. The yield of hay had been greater a number of times than it was this year, but the 5-year average for 1903 to 1907 was only 60,671,000 tons. Iowa, as in 1908, was the leading hay State in 1909, producing 5,983,000 tons on 3,648,000 acres. New York, where dry weather reduced the crop, yielded 5,002,000 tons on 4,764,000 acres, and ranked second, being followed by Illinois with 4,135,000 tons on 2,852,000 acres, Ohio with 4,033,000 tons on 2,820,000 acres, Pennsylvania with 3,742,000 tons on 3,118,000 acres, and Missouri with 3,719,000 tons on 2,755,000 acres.

HAZELTINE, MAYO WILLIAMSON. An American literary critic and writer, died September 14, 1909. He was born in Boston in 1841, and graduated from Harvard College in 1862. He studied at Oxford and spent some years in Continental Europe. Returning, he studied law and was admitted to the bar. In 1878, at the invitation of Charles A. Dana, he became an editorial writer for the *New York Sun*. Up to the time of his death he was connected with that paper as leading book reviewer, and editorial writer. He contributed also to the *North American Review* and other periodicals, particularly on foreign topics. His published books include *Chats About Books*, *British and American Education*, and *The American Woman in Europe*.

HEART, REANIMATION OF. Several methods of reestablishing the heart action after that organ has stopped beating were tried experimentally during 1909. Mocquot, in a resumé of the subject, says that the best method was by massage of the heart below the diaphragm through an abdominal incision. Massage through openings in the chest was tried in 21 cases, with 2 complete and 5 partial successes, whereas in 22 cases of massage in which the heart was manipulated from below the diaphragm, success was complete in 9 and partial in 6. Mocquot found that it was not necessary to grasp the heart during massage, but it is more effectual merely to compress the ventricle against the chest wall by means of the hand introduced flat behind the heart. Butruille succeeded in massaging the heart in an asphyxiated new born infant without any incision, merely working two fingers under the false ribs and seizing the heart between the two fingers and the thumb placed on the precordial region. The rhythm of the compression of the heart should approximate the normal rate, that is, about 60 a minute. Cyon revived the heart merely by irrigating the nerve centres with oxygenated blood. Adrenalin was found valuable in stimulating the heart to contract, and may be used alone or associated with massage. These methods are applicable to cases of chloroform syncope, asphyxia, traumatism of the heart,

embolism or diphtheria, and were actually used in 53 cases in the human subject.

Dr. Louise G. Robinovitch, of New York and Paris, repeated in New York and Boston experiments first made by her in Magnan's laboratory, Paris, in which resuscitation of animals apparently dead from chloroform poisoning was accomplished by the application of a current of low tension and frequent interruption (6000 to 12,000 per minute), passed through electrodes applied to dorsal and lumbar points, avoiding allowing the current to pass through the head. An induction current furnished by a coil the diameter of whose wire is not under 0.6 mm. may be substituted. Similar resuscitation was obtained by Robinovitch in the case of animals apparently killed by an industrial electric current, the minimal voltage being employed which will start heart beats, after artificial respiration is excited by the current (10 to 75 volts). In man, she used 20 to 90 volts, and the electrodes were placed as follows: cathode on the dorsal region (measuring 25 by 30 cts.), anode on the lumbar region (12 by 25 cts.). She suggests that a special coil be placed in power houses, with capacity of sufficient power to give a strong current for practicing rhythmic excitations.

HELPER, HINTON ROWAN. An American writer and public official, died by his own hand March 9, 1909. He was born in 1829, in North Carolina. He was an early anti-slavery agitator, and his *Impending Crisis of the South*, which was a bitter arraignment of slavery, and an attempt to convince the South that it would be economically better without it, created a great sensation and had enormous sales throughout the country. Helper was Consul at Buenos Ayres, 1862-6. He gave many years of his life to a project to connect North and South America by a railroad. He wrote, in addition to the work mentioned above, *The Three Americas Railway*, *The Negroes in Negroland*, *The Land of Gold*, and *Oddments of Andean Diplomacy*.

HENDERSON, ETTIE (LEWIS). An American actress and playwright, died October 7, 1909. She was born in London in 1835, and was brought to the United States at the age of four by her father, Henry Lewis, who was a famous English actor. At the age of ten she appeared in *The Stranger*. She was educated at the Notre Dame Convent in Cincinnati, and married William Henderson in 1855. She appeared successfully in many engagements in the United States and in 1863 toured England as the star in *Fanchon*. Several years later she gave up acting to devote her time to writing plays. Her first production was *Marriage*, which was very successful. She wrote also *Claire* and *The Forge Master*, which were also successful, and dramatized Gaboriau's novel *Within an Inch of His Life*. From 1889, when her husband died, until 1899 she owned and managed the Academy of Music in Jersey City, N. J.

HENDRICK, THOMAS AUGUSTINE. An American bishop of the Roman Catholic Church, died November 30, 1909. He was born in Penn Yan, N. Y., in 1849. He was educated at the public schools and in St. John's College at Fordham, and at St. Joseph's Provincial Seminary in Troy, N. Y. He was ordained as a priest in 1873. The year following he served as assistant pastor of St. Mary's Church, Rochester, N. Y., for a year and was then appointed

rector of the Holy Cross Church, at Charlotte, N. Y. He served later as pastor at Union Springs, N. Y., and in 1891 took charge of St. Bridget's Church in Rochester. Here his work was remarkably successful. While acting as pastor of St. Bridget's he was summoned to Rome by Pope Leo XIII., to prepare for consecration as the first American Bishop of Cebu, Philippine Islands. The Pope died while Father Hendrick was on his way to Rome and he was consecrated by Cardinal Satolli. He took up his work in Cebu in March, 1904, and continued it until the time of his death. As a parish priest in Rochester Father Hendrick took a keen interest in public affairs. He served at one time as a regent of the University of the State of New York and was also a vice-president of the New York and National Associations for the Prevention of Cruelty to Animals, and a delegate from the National Association to the World's Conference in London in 1902.

HEY, JULIUS. A German musician and teacher of music, died May 15, 1909. He was born at Irmelshausen in 1832 and studied music under F. Schmitt and F. Lachner. He was introduced to Wagner by King Louis II. of Bavaria, and attempted in connection with the Munich School of Music to bring about a revolution in the national system of singing. His attempt failed and on Wagner's death in 1883 he retired from public life to complete his work on singing, *Deutscher Gesangsunterricht* (1886). Although unsuccessful in his efforts to bring about changes in the existing methods of voice culture, Hey exercised a powerful influence on the contemporary schools of singing.

HIGH PRESSURE FIRE SYSTEM. See FIRE PROTECTION.

HIMALAYA MOUNTAINS. See EXPLO-
RATION.

HISTORICAL ASSOCIATION, AMERICAN. A society for the promotion of historical studies, organized at Saratoga, New York, in 1884. The Association was incorporated in 1889 by Act of Congress. Its principal office is fixed at Washington, and it is required to make an annual report to the Secretary of the Smithsonian Institution. The object of the Association is the promotion of historical studies and its activities have steadily increased in number and widened in scope. Its annual meeting, held in New York December 27-30, was the celebration of its 25th anniversary. In conjunction with this the American Economic Association, the American Political Science Association and the American Sociological Society held meetings at the same time and place. Addresses of welcome were made by Governor Hughes of New York, Mayor McClellan of New York City and President Butler of Columbia University. Many foreign visitors of distinction were present. A novel feature of the programme was a series of historical tableaux illustrating scenes and events in the political history of New York. In the presidential address, President Albert Bushnell Hart discussed "The Use and Abuse of Imagination in History." Particular interest attached to the session held with the American Political Science Association, which discussed "British Constitutional and Political Development with special reference to the Centenary of Gladstone." Edward Porritt and Ambassador Bryce spoke upon various aspects of Gladstone's career. Professor George W. Wrong of the University of Toronto,

sketched the growth of nationalism in Canada. Herbert L. Fisher of New College, Oxford, spoke of the achievement of political union in South Africa. Among the foreign visitors in attendance beside those mentioned above, were Professor G. W. Prothero, Professor Édouard Meyer of Berlin, Professor Camille Enlart of Paris, Professor H. T. Colenbrander of Verboog, Holland, and Professor R. Altamira of Ovideo, Spain. A special session was devoted to a discussion of the work of historical societies in Europe. Ten conferences with other societies were held, including one with the American Society of Church History, and two with the New York State Teachers' Association. Conferences were also held on ancient history and on the contribution of the Romance nations to the history of America. A conference on modern European history considered the political situation in Bosnia and Herzegovina, Bismarck as a historiographer, and a proposed course in contemporaneous history. The conference of State and local historical societies showed gratifying progress in the unification of work and the improvement of society publications. Plans are well under way for a bibliography of English history to be carried out jointly by a committee of the Association and a similar committee of English scholars. A committee has also been created to make a preliminary investigation of historical sites and buildings. The Association meets in 1910 at Indianapolis. Professor Frederick J. Turner was chosen president. The Society numbered in 1909 about 2500 members.

HITCHCOCK, ETHAN ALLEN. An American public official, died April 9, 1909. He was born in Mobile, Alabama, in 1835, and was a great-grandson of Ethan Allen of Revolutionary War fame. He was educated at a military school in New Haven, Connecticut, and went to St. Louis, where he engaged in business with his father. Following a stay of several years in China, he became interested in railroad and mining enterprises in Missouri, where he became one of the leading business men. In 1897 he was appointed by President McKinley, Minister to Russia, and in 1899 he was asked by the latter to succeed Cornelius N. Bliss as Secretary of the Interior. At the very outset of his assumption of this office, the attention of Mr. Hitchcock was called to the wholesale frauds by which government lands were being stolen in the Northwest. He set himself to the discovery and punishment of the perpetrators of these crimes, and by the end of his term he had secured the conviction of 89 persons and the indictment of 402 others, whose cases were untried. Among those convicted were a United States Senator, a Representative to Congress, and several high officials of the Land Office. Great pressure was brought to bear upon Presidents McKinley and Roosevelt to procure the removal of Mr. Hitchcock as the result of his zeal in these prosecutions, but he had the firm support of both these executives. Mr. Hitchcock was responsible, also, for starting government suits to cancel patents to millions of acres of valuable oil lands secured by railroads through alleged false entries in Utah, Colorado, Wyoming and Idaho. Among his last official acts was his refusal to approve the purchase and assignment of valuable oil lands in Oklahoma to the Standard Oil Co. In 1907 Mr. Hitchcock resigned his portfolio, and was succeeded by James R. Garfield.

HITCHCOCK, FRANK HARRIS. An Ameri-

can public official, Postmaster-General in President Taft's cabinet. He was born at Amherst, Ohio, in 1867, and graduated from Harvard University in 1891. After having graduated from the Columbia University Law School in 1894, he was admitted to the bar. From 1891 he was almost exclusively engaged in government work. He was Chief of the Division of Foreign Markets in the United States Department of Agriculture, Chief Clerk in the Department of Commerce and Labor, Assistant Secretary of the Republican National Committee, a member of the Keep Commission, and First Assistant Postmaster-General. He had charge of President Taft's campaign for nomination and election and his work in that capacity was considered remarkably efficient. He is the author of many bulletins, reports and circulars on foreign trade and the customs tariff. See **UNITED STATES**, paragraphs *Cabinet, Administration, and Post-office*.

HOE, ROBERT. An American printing press manufacturer, inventor and art collector, died September 22, 1909. He was born in New York City in 1839, the grandson of Robert Hoe, who came to the United States in 1803, and established a press building business with two of his brothers-in-law, Matthew and Peter Smith, as partners. The subject of this sketch went to school in New York and studied abroad. As a young man he entered the printing press factory of which his father, Robert Hoe, and his uncles, Richard March Hoe, the inventor, and Peter Hoe, were the heads. His father died in 1884, and his uncle shortly after, and the management of the business was then left to Robert Hoe. His devotion to the work was unflagging, and the inventive genius which had descended to him from his grandfather enabled him to make a long series of improvements in printing presses.

Among these the most noteworthy was the invention of the rotary, multi-color press, which enabled the printing of illustrations in 11 and 12 colors. Mr. Hoe paid great attention to the training of his employees, and developed a large apprentices' school with an elaborate curriculum. He was one of the best known collectors of objects of art and rare books in the United States. He was one of the founders and first president of the Grolier Club, and one of the founders of the Metropolitan Museum in New York City. He wrote several books, dealing, for the most part with printing. Among them was a history of the development of the printing press from the time of Gutenberg to the present day.

HOFFMANN, HANS. A German novelist and poet, died in July, 1909. He was born in 1848 at Stettin and studied at the universities of Bonn, Berlin, and Halle. Thereafter he made a long visit in Italy, and Greece. Hoffmann was considered one of the most gifted of modern German novelists. He had a particular talent for vivid descriptions of landscapes and a delightful humor. Among his best known works are *Ivan der Schreckliche und sein Hund* (1889); *Von Frühling zu Frühling* (1889); *Irrande Mutterliebe* (1900), *Von Hoff zu Hoff* (1903).

HOFFMAN, RICHARD. An American pianist composer and teacher of music, died August 17, 1909. He was born in Manchester, England, in 1831, and at the age of 16 removed to New York City. He received his earliest instruction from his father and subsequently was a student of many famous musicians, including Pleyel,

Moscheles, Rubinstein and Liszt. Following his return to America he made a tour of the country and later was an accompanist of Jenny Lind on her tours in the United States. He was popular as a concert pianist and played with Gottschalk and von Bülow. His later years were devoted to teaching and he became one of the most important factors in American musical life. His compositions include piano-forte music, part songs and ballads, anthems, and church music generally.

HOFMEYER, J. H. A British colonial official, died October 16, 1909. He was born in 1845 in Cape Town, South Africa, and was educated in the South African College in that city. For some years he was editor of several papers in Cape Town, including the *Volksvriend*, the *Zuid Afrikaan*, and the *Zuid Afrikaan Tydschrift*. He represented Cape Colony at the London Conference with Sir Thomas Upington and Sir Charles Mills, and proposed the scheme of the Imperial Customs Federation. In 1888-9 he was a member of the South African Customs Union Conference, and negotiated the Swaziland Convention of the Transvaal in 1890. He was deputed by the Cape Town government to Bloemfontein and Pretoria in July, 1899, and obtained franchises and other concessions to prevent hostilities between the South African republics and England. He was a member of the executive council of Cape Colony. His death occurred in London while he was attending the Colonial Conference as the delegate.

HOLDER, SIR FREDERICK WILLIAM. An Australian public official, died July 22, 1909. He was born in Happy Valley, South Australia, in 1850. He was educated in the public schools and at St. Peter's College. After some years in school teaching and journalism, he was chosen in 1887 member of the House of Assembly of South Australia. In 1892 he was Premier and Treasurer of South Australia; in 1893-4 Commissioner of Public Works; Treasurer 1894-9; Premier, Treasurer and Minister of Industry 1899-1901. In the latter year he resigned to enter the Federal Parliament. He took a prominent part in the movement for Australian federal union, and was a member of the convention which framed the constitution in 1897-8. He was returned to the first House of Representatives, and was Speaker, 1901-9.

HOLLAND. See NETHERLANDS.

HOLLE, LUDWIG VON. A German scholar and public official, died December 13, 1909. He was born in 1855 in Westphalia. He early entered the public service and his entire career was spent there. He served at one time as Prussian Ambassador to Japan. He was identified with the arrangements between the United States and Germany for exchange professors.

HOLSTEIN, FRIEDRICH VON. A German diplomat and public official, died May 8, 1909. He was born in 1837, and for over 30 years was head of the political department of the German foreign office. Von Holstein, on account of his retiring disposition, was little heard of in discussion of public affairs, but he exercised great influence on the foreign policy of the German Empire. He held office under Bismarck, and when the Emperor William, in 1890, dismissed Bismarck, von Holstein chose to remain in the foreign office in order that his services might be employed by Count Caprivi.

To von Holstein's influence is attributed the German seizure of Kiaochow in China, and he is generally believed to have been the real author of the policy pursued by Germany in regard to Morocco. On the failure of this policy he retired from office. It was said that, following the retirement of Bismarck, he was the real director of Germany's foreign policy.

HOMER, LOUISE DILWORTH (BEATTY). An American contralto prima donna singer who has achieved great success in recent years in concert, and on the operatic stage. She was born in Pittsburgh, Pa., and began the development of her voice in Philadelphia. She studied later in Boston, where she married Mr. Sidney Homer, a well-known song composer (see below). After her marriage, Mme. Homer studied in Europe, and after two years in Paris made her debut as an opera singer. She achieved an emphatic success and was engaged for the following season for Covent Garden, London, where she made her debut as Amneris in *Aida* in May, 1899. In September of the same year she was called to the Royal Opera at Brussels, where she remained for eight months. She returned to Covent Garden, London, in the spring of the same season. Following her success in London she was engaged at the Metropolitan Opera House in New York, where she has sung for ten successive seasons. Mme. Homer's successes have been achieved in the greatest contralto rôles, such as Amneris in *Aida*, Laura in *La Gioconda*, Azucena in *Il Trovatore*, Otrud in *Lohengrin*, Fricka in *Walküre*, and others. Among her more recent successes are the rôles of Dame Quickly in Verdi's *Falstaff* and of Orpheus in Gluck's opera of the same name.

HOMER, SIDNEY. An American composer and song writer, who in recent years has won a high place among American composers. He was born in Boston in 1864. His first musical studies were made under George W. Chadwick. He went thereafter to Germany and spent five years, three of them at the Royal Conservatory of Munich under Josef Rheinberger. Returning to Boston, he taught harmony and counterpoint for eight years, at the same time conducting lectures and classes in the study of symphonies and the Wagnerian music dramas. In 1895 he married Miss Louise Dilworth Beatty (see above). Mr. Homer's songs have been sung by the leading singers in the United States and elsewhere. Among the best known of them are: Two poems by Tennyson, "Sweet and Low," and "Thy Voice Is Heard"; two songs by Robert Browning, "A Woman's Last Word," and "Prospice"; "The Last Leaf"; three songs from Stevenson's *Underwoods*, "Sing Me a Song of a Lad that Is Gone," "Requiem," and "The Stormy Evening"; and "Dearest," a poem from Henley's *Hawthorn and Lavender*.

HONDURAS. A Central American republic, bordering on the Caribbean Sea and touching the Pacific at the Gulf of Conchagua. The capital is Tegucigalpa.

AREA, POPULATION, ETC. The estimated area of the sixteen departments and one territory constituting the republic is 44,274 square miles. At the end of 1905 the population, according to official figures, was 500,136, mostly of Indian blood. The estimated population in 1907 was 543,741. The principal towns, with estimated population, are: Tegucigalpa, 35,000; Juticalpa, 17,800; Nacaome, 12,040; La Esperanza,

11,500; Santa Rosa, 10,900; Choluteca, 10,820; San Pedro Sula, 10,000. Primary instruction is free, secular, and nominally compulsory. At the end of 1908 primary schools numbered 648. In May, 1907, there were 775 schools (of which 720 were public schools), with 912 teachers and an average attendance of 47,000 pupils. In 1908 children of school age (7 to 15) numbered 109,353. There are several institutions for secondary, higher, and professional education.

INDUSTRIES. Agriculture is the leading industry, and cattle raising and mining are important. The chief crop is bananas, and other products include tobacco, sugar, corn, coffee, rubber, sarsaparilla, cocoanuts, oranges, and lemons. Banana production in 1908 amounted to 4,310,538 bunches. Increasing activity is to be noted in both banana and tobacco culture. The sugar output is used largely in the manufacture of rum. There is some exploitation of the forests, which are rich in valuable woods, including mahogany and cedar. In 1909 an American company (capital, \$1,000,000) undertook the exploitation of a large tract of mahogany territory and began the construction of an 18-mile railway from Armenia (near Ceiba); besides tapping the mahogany district, the railway will pass through productive banana lands. The mineral resources of the country are remarkable in richness and extent, but they have not been greatly developed. Mining, as well as industries in general, is hampered by inadequate means of transportation, lack of capital, and scarcity of labor. The metals and minerals include gold, silver, platinum, copper, mercury, lead, zinc, tin, nickel, iron, antimony, bismuth, cinnabar, opals, salt, sulphur, petroleum, and coal.

COMMERCE. According to Honduran official statistics, imports and exports for the year ending July 31, 1907, were valued at \$2,331,398 and \$2,012,407 respectively; for 1908, \$2,829,979 and \$1,834,060 respectively. The leading imports are cotton textiles and breadstuffs and other provisions. The 1908 exports were classified as follows: Vegetable products, \$1,050,420; mineral products, \$578,939; animal products, \$197,135; manufactures, \$7516. In the first class were: Bananas, \$768,508; coffee, \$77,058; cocoanuts, \$75,866; mahogany, \$36,271; rubber, \$30,272; sarsaparilla, \$22,037. The minerals included: Cyanide products, \$204,802; ore, \$167,360; coined silver, \$98,280; silver in bars, \$85,912; gold, \$18,360. Animal products included: Hides, \$72,569; cattle, \$65,038 (\$133,735 in the preceding year); cheese, \$31,682; deerskins, \$15,641; mules, \$10,186. Of the manufactures, straw hats had a value of \$3949. Imports from and exports to the countries commercially most important were in the fiscal year 1908 respectively: United States, \$1,878,942 and \$1,591,351; Great Britain, \$339,746 and \$32,131; Germany, \$248,650 and \$90,160; British Honduras, \$108,735 and \$33,040; France, \$97,540 and \$1861. In April, 1909, the government prohibited the importation of spirituous liquors into the country.

COMMUNICATIONS. Means of communication and transportation are very inadequate. There is a railway of 57 miles from Puerto Cortez to San Pedro Sula and Pimienta, and its continuation to La Brea, on the Pacific, as well as branch lines, is projected. From Ceiba a railway extends 32 miles into the Zacate banana

lands. A line 18 miles in length is under construction from Armenia inland. A railway of about 350 miles (capital \$10,000,000,) has been projected from Trujillo Bay to Juticalpa, with branches to Tegucigalpa and various other interior towns. This line when completed will penetrate a region rich in gold, silver, and other minerals and hard woods. Contracts for other lines have been approved by the government, but their construction is not assured. There is some steamboat river navigation; a regular line of steamers plies on the Ulua River from its mouth to Progreso, 125 miles. In 1908 there were 2842 miles of telegraph line.

FINANCE. Revenue and expenditure for fiscal years ended July 31 are reported as follows, in pesos:

	1906	1907	1908
Revenue	\$3,535,078	\$2,828,386	\$3,442,476
Expenditure	3,294,747	4,023,350	3,391,965

For the fiscal year 1909 the budget balanced at 3,703,216 pesos; for 1910, 4,714,065 pesos. Estimated receipts for the latter year included: Import duties, 1,800,000 pesos; liquor and tobacco taxes, 1,750,000; export duties, 142,500. The largest item of expenditure is for the army. In July, 1908, the external debt, with arrears of interest since 1872, amounted to \$107,528,498. In 1906 the internal debt stood at 3,125,993 pesos paper. The silver peso is worth about 36.5 cents.

ARMY. An active army of about 2000 is maintained and a militia of about 30,000. Legally each citizen is liable for service in the army from his 21st to 35th year and in the reserve from his 35th to 40th.

GOVERNMENT. The executive authority is vested in a president, who is elected by popular vote for a term of four years, and is assisted by a cabinet of six members responsible to himself and to the Congress. The legislative power devolves upon a unicameral Congress of Deputies (42 members, elected by direct vote for four years). The executive in 1909 was General Miguel R. Dávila, who assumed provisional charge of the presidency April 18, 1907, and became president early in the following year.

HISTORY. Difficulty occurred at the close of 1908 between the American Consular agent at San Pedro and one of the court officers, resulting in an act considered insulting by the American agent, and early in the following month, at the demand of the United States government, an apology was made by President Dávila, and the court official was dismissed. The protection of American interests in San Pedro was reinforced by the presence of the United States gunboat, *Marietta*, which was sent to the Honduran coast in May. A revolt was reported at Ceiba early in June and an American gunboat was sent there to guard American interests. In July martial law was proclaimed along the north coast, the revolt having assumed a somewhat formidable phase. It arose from the government's inability to pay its troops and civil servants, owing to the delay in receiving the \$2,000,000 indemnity from Guatemala for the revolution of July, 1908. Attempts to float a loan were unsuccessful. The trouble was attributed to the interference of President Zelaya of Nicaragua, who was said

to control Honduras and to appropriate her revenues. It was reported that when the unpaid officials tried to recoup themselves by the seizure of customs duties at the Atlantic ports they were prevented by Zelaya.

HONDURAS, BRITISH. See **BRITISH HONDURAS.**

HONGKONG. An island off the southeast coast of China, which, together with a strip of territory on the mainland leased from China, constitutes a British Crown colony. Area of the island, about 30 square miles; of the mainland, 341. Total population, estimated 1907, 421,499 (Chinese, 401,461). Capital, Victoria. There were in 1908 73 government schools, with 6178 pupils. There is a considerable ship repairing and construction industry. The port is fortified, and has been "the one free port of the Far East," but in 1909 the Legislative Council passed an ordinance providing for the collection of duties on imports of alcoholic liquors. The harbor, one of the finest in the world, has a water area of about 10 square miles. Hongkong is the centre of trade (mostly transit) for many articles, among the principal being opium, sugar, flour, salt, oil, amber, cotton, timber, hemp, ivory, live-stock, etc., etc. There are no official returns of trade. The British Board of Trade returns give the imports into Great Britain from Hongkong for 1908 at £547,339, against £618,860 in 1907; the exports of British produce to Hongkong at £3,088,340, against £3,355,402 in 1907. Shipping entered, 1907, 18,013,307 tons; 1908, 17,323,965 tons. The money of account is the Mexican dollar, worth 49.8 cents. The revenue and expenditure for the fiscal year 1908 were 6,104,207 and 7,929,477 dollars respectively, against 6,602,280 and 5,757,203 dollars in 1907. Large amounts are expended annually for waterworks and in fighting plague. The public debt stood, January 1, 1908, at £1,485,732. The colony is administered by a governor (1909, Sir F. J. D. Lugard), aided by an executive and a legislative council. A sanitary board controls all sanitary measures. The Imperial garrison numbered (1907) 1551 Europeans, 1958 Indians, and 55 Chinese. Early in the year a new university, designed to attract Chinese students, was proposed for Hongkong. A small fund for that purpose was subscribed by a colonial broker and donations gradually accumulated. In the summer the Viceroy of Canton suggested that the provincial funds should be applied to that purpose and urged the Peking authorities to assist in the plan. He raised a considerable sum from the provinces and the Wai-wu-pu.

HOOKWORM DISEASE (Syn. *Ankylostomiasis*; *Uncinariasis*; *Miners' Anæmia*) received a good deal of attention from sanitarians during 1909. The disease is a true anæmia produced by the activity of an intestinal worm, the *uncinaria* or hookworm, which parasite fastens itself to the intestinal mucous membrane and sucks the blood therefrom. The individual harboring the parasite becomes anæmic, loses ambition, lacks resistance to disease, and is able to perform only a limited amount of work. In 1902 Dr. Charles W. Stiles, Chief of the Division of Zoölogy in the Hygienic Laboratory, proved that the hookworm was the cause of the invalidism of the Southern "poor whites." Estimates made by

Dr. Stiles showed the disease to be widespread and the number of its victims at least two millions. These observations were afterwards confirmed, though received with incredulity at first, and the discovery was recognized as one of the greatest triumphs of medical laboratory work in the United States.

Seven years have elapsed between the discovery and full public awakening to the important relation of the disease to the industrial prosperity of the South. Mr. John D. Rockefeller recently gave \$1,000,000 for the purpose of combating the malady by a campaign of education and the establishment of a commission to study the problem in its various phases. The known facts in regard to the disease as pointed out by Stiles in the Public Health Reports for July, 1909, are briefly as follows: The parasite has been appropriately named *Necator americanus* (American murderer). It is a cylindroid worm, the female having a length of from 5 to 18 millimeters, the male 6 to 10 millimeters. It is provided with a mouth armed with six incurving teeth, by which it fixes itself firmly on the intestinal surface. The disease exists in Africa, and may possibly have been brought by the negro to this country. The negro is partially immune, so that the disease is less manifest; but there are a great number of cases in a mild or latent form among the black race. The ovum of the parasite may enter the system either with food or drink or through the skin, the latter mode of entry being probably the most common. Unhygienic living, especially in regard to soil pollution, favors infection with the parasite, and for this reason the negro is more likely to contract the disease than the white race, particularly in the country districts, where not only farms, but even schools and churches are unprovided with privies. Hookworm disease, Dr. Stiles points out, while not rapidly fatal, induces anæmia, renders the organism less resistant to disease in general, and favors the occurrence of other infections. Hookworm disease increases the death rate from pulmonary tuberculosis, for example, and perhaps explains the high negro mortality from the latter malady, which is about three times as great as among the whites. Another important effect is the reduction of intellectual activity and learning capacity during the school period, and this is most marked in negro children. The prevention and control of *ankylostomiasis* must be through a general recognition of its existence, the proper treatment of individual cases of the disease, and the prevention of soil pollutions. Vermifuges, of which male fern, thymol, chloroform and eucalyptus oil, and betanaphthol are most effective, are useful in clearing the intestinal tract of the worms.

W. C. Alvarez, of Cananea, Mexico, calls attention to the existence of endemic foci of *ankylostomiasis* in the whole of Mexico from the Isthmus of Tehuantepec and Yucatan to the states just above the City of Mexico, and to the migration of individuals infected with the hookworm to the United States.

HOPS. The fact that for several years low prices have prevailed in the hop market was the principal cause in reducing the acreage of hops in 1909. In Oregon the drought during the summer of 1908, followed by unfavorable winter and spring seasons, was injurious to the vines and proved an additional factor in

reducing the acreage in that State. In Washington the prospects during the season were more favorable than in Oregon, and in California the outlook was about normal. New York also reported a reduced acreage. The shortage in the world's supply, which became apparent in 1909, raised the price considerably, and while the estimated American crop this year, about 40,000,000 pounds, is below the 5-year average of 51,589,400 pounds, the higher price raises its value to about \$8,000,000, ranking second only to the crop of 1906, which reached the high value of over \$12,000,000. The price went up to 33 cents per pound in New York and to 24 cents in Philadelphia, but as a large proportion of the crop on the Pacific coast had been previously contracted for at a much lower figure, many growers were unable to avail themselves of the good prices. The European crop for 1909 is estimated by foreign commercial authorities as follows: England, 24,640,000 pounds; Austria-Hungary, 21,392,000 pounds; Germany, 21,280,000 pounds; Russia, 6,720,000 pounds; France, 3,360,000 pounds; and Belgium, 2,240,000 pounds.

HOBNEY, JAMES JOHN. An English clergyman and educator, died November 2, 1909. He was born at Winwick in 1826 and was educated at Eton and at Balliol College, Oxford. After his graduation from the university he was elected Fellow of Brasenose. In 1853 he was elected principal of Bishop Cosin's Hall in the University of Durham, and remained in this position eleven years. In 1864 he returned for a short time to Oxford as classical lecturer. In 1867 he became Second Master of Winchester School. Here he remained a little more than one year, when he was appointed Head Master of Eton. This position he held for sixteen years, when, in 1884, on the death of Dr. Goodford, he was elected Provost of Eton. This position he held until his death.

HORTICULTURE. Although the interest in improved cultural practices continued unabated, commercial horticulturists in 1909 were most actively engaged in working out problems dealing with crop disposal in all of its phases. In spite of individual crop failures, such as the short olive crop in Italy and the continued short apple crop in the United States (estimated at 22,750,000 barrels), the world's production of horticultural crops was increased, and competition, both internally and in export channels, was keener. Growers have awakened to the need and value of cooperative and marketing associations, and of exchanges equipped not alone to secure uniform grading and packing, but to divert the crops into timely markets and to open up new markets as well. During the season of 1908-09, the well-organized California growers successfully marketed some 40,592 cars of citrus fruits, while Florida growers, through lack of organized distribution, secured poor return for their crop of 4,800,000 boxes, or about 16,000 cars, of citrus fruits. The Florida Citrus Exchange, an organization similar to the California Citrus Exchange, was started by the growers and was already demonstrating its value as a regulator of market conditions at the close of 1909. Through organized distribution and exploitation the Hawaiian planters built up their canned pineapple trade with the mainland of the United States to a value of \$1,229,000 for

the fiscal year 1909, as against \$267,000 for the fiscal year 1907. California made the largest fresh deciduous fruit shipments in the history of the industry—13,096½ cars other than apples and mixed lots, as compared with 10,700 cars in 1908. California's cured fruit output for 1909 was estimated at 185,000 tons, as compared with 144,750 tons, the final figures for 1908. In 1908, the United States shipped over 700,000 cases of canned fruits to Great Britain and over 600,000 cases in 1909. Unusual efforts were being put forth to develop the fruit trade between the British colonies and the United Kingdom. Canadian canned fruits and fresh apples were competing successfully with apples from the United States. Tasmanian, New Zealand, and Australian apples were finding a good market, as they come in when the American apple is about exhausted. South African fruit was also being sold in British markets to a small extent, particularly pineapples. A considerable freight reduction recently made on Cape fruit, bids fair to stimulate the industry.

In Germany, the country of small intensively cultivated fruit gardens, horticulturists were actively agitating the development of extensive commercial orchards. Germany ranks second to the United States in number of fruit trees; next to Switzerland in number of trees in proportion to population; imports annually about \$11,900,000 worth of fresh, dried, and preserved fruits, and produces about \$59,500,000 worth of domestic fruits and nuts. Brazil, with a view to developing her fruit trade, was reported to have issued an official order compelling all steamship lines doing business with Brazil to have refrigerators and ventilated space on board their steamers for the proper accommodation of fruit shipments. The Brazilian Department of Agriculture is to give four prizes to shippers at each of the Brazilian ports, ranging from \$600 to \$3000 gold, to the largest shippers for exports during the eight months following the issue of the decree authorizing the prizes.

Late in the year it fell to the lot of Belgium, sometimes called the cradle of horticulture, to establish the first distinct Department of Horticulture. France attached a broad technical Commission of Horticulture to her Ministry of Agriculture, whose duties it shall be to pass on all matters of consequence to the horticultural interests of the country.

The munificent bequest made by the late Mr. John Innes of Merton, England, bids fair to prove a lasting benefit to British horticulture. Under the terms of this bequest, a body of trustees is to administer a sum approximating £10,000 a year for the purposes of an institution to be known as the "John Innes Horticultural Institution," and to have for its object the promotion of horticultural instruction, experiments, and research. A horticultural station is to be equipped, and the trustees are empowered to establish and equip similar stations in other parts of the country. Professor W. Bateson, F. R. S., Professor of Biology at the University of Cambridge, has accepted the post of Director.

POMOLOGY. In view of the large experimental and commercial plantings of the Satsuma orange being made in the Gulf States, the United States Department of Agriculture, acting on the results of investigations made by Swingle,

announced that the Satsuma orange was almost a complete failure on sour-orange stock on any soil and in any climate, and succeeded well only when budded on Trifoliolate-orange stock. To protect purchasers against receiving trees grafted on sour-orange stock, the Department offered for the present to pass upon stocks submitted for determination.

The fruit marketing, transportation, and storage work of the United States Department of Agriculture was extended to the new and growing California lemon industry, and quickly showed that these lemons could be shipped in sound condition throughout the United States if handled without bruising in the fields and curing houses. In the storage work with table grapes, clean redwood sawdust was found to be even better than fine ground cork as a packing material. The pre-cooling studies with oranges were continued and showed that pre-cooling before shipment not only reduces the losses in transit and extends the market area, but also affords more car space, as the packages can be placed closer together. The results from this work caused the transcontinental railroad lines running out of California to construct plants, where train loads of fruit could be quickly cooled after loading. Several plants were also constructed by growers' organizations.

O. Schneider, a Swiss investigator, concluded as a result of several respiration and transpiration experiments with fruit stored in dry and dark locations, together with experiments on the respiration of injured stored fruits, that sunlight, through its warming effect, increases both the respiration and transpiration of stored fruit, and therefore should not be allowed to enter the storage place. Diffused daylight, on the other hand, did not appear to materially influence the life activities of stored fruit. When the fruit had been injured a respiration acceleration was evident for several days.

Lewis and Vincent, of the Oregon Experiment Station, reported that only fifteen out of eighty-seven varieties of apples studied by them were entirely self-fertile, and that fruits of the self-fertile varieties were improved in size by cross-pollination. They determined a number of suitable pollenizers for several commercial varieties of apples. They found that apple pollen is capable of maintaining its viability for at least three weeks, provided it is not allowed to ferment. The New York Station published the results for the first five years of an exhaustive study of tillage versus the sod-mulch or Hitchings method of cultivating apple orchards. The work as conducted in an old bearing orchard, showed an increase of over 54 per cent. net income per acre in favor of tillage. The tilled fruit was better in quality but less highly colored, and from one to three weeks later in maturing than the sod grown fruit. A. S. Ghebreznitzkii, a Russian investigator, demonstrated in an experimental way that seedless apples can be produced through the castration of the blossom by the apple blossom weevil (*Anthonomus pomorum*). The seedless apples were somewhat smaller and more irregular in form than the normal apples.

Considerable work with grapes was reported. Investigations to determine the adaptability of Phylloxera and chlorosis-resistant stocks to soils and to determine their influence on different varieties used as scions were being car-

ried on in practically all countries where *Vinifera* grapes are grown. It was still a disputed question whether the hardy American stocks are detrimental to the vines of European varieties used as scions. The North and South Carolina Stations conducted several studies of the Scuppernong and other Muscadine grapes of the South. Reimer, of the former station, published a bulletin on their history and development. Newman, of the latter station, determined experimentally in 1908 that if these vines (which are usually allowed to ramble at will) are pruned during the months of October and November, there will be no serious effects, but when cut later in the season they will bleed badly and seriously injure if not destroy the vine. The grapes at the Porto Rico Station were making exceptional growth, to the exclusion of fruiting. Three varieties were forced into bearing by two heavy prunings, one in spring and the other in early fall, together with frequent bud pinching. R. A. Sacca, working at the Royal Agricultural High School of Portici, Italy, studied the leaves of various species and varieties of grapes grown under similar conditions, and found a correlation between yield and the amplitude of the angle formed by the median nerve and the lowest constant lateral nerve. In general, the yield decreased with the size of the angle. The same correlation was noted for the sugar content of the must. The acid content increased as the angle decreased. Although cultural conditions appeared to influence the intensity of the skeleton network, they did not affect the relative direction of the nerves.

In Hawaii methods for the propagation of citrus, mango, and avocado trees were worked out, and prospects were fair for the extension of tropical fruit culture on the islands. Kelley, of the Hawaii Station, investigated the failure of pineapples to grow successfully on certain black spots in the otherwise reddish soils, and attributed it to the excessive manganese content in the black soil.

The work of determining and developing varieties of fruit suitable for the rigorous climate of Alaska was continued and gave promise of limited success with apples, cherries, and plums. Most bush fruits do well, although black raspberries and blackberries are a failure in Alaska. The results at the different stations have shown that an abundance of hardy vegetables could be produced in that country. Certain strawberry hybrids gave promise of having combined the hardiness of the native parents with the quality of the cultivated ones.

EXPERIMENTS IN FORCING AND RETARDING PLANTS. Commercial florists in Europe are becoming interested in the warm bath method of forcing plants, recently investigated by H. Molisch. This method consists in soaking cut branches or rooted plants of various trees and shrubs in warm water for from nine to twelve hours, and then forcing them in the usual manner. It was found to be applicable to a large number of the shrubs generally employed for forcing purposes, although bath temperatures yielding the best results for each plant remain to be determined. In general, the stimulating effect of the bath greatly diminishes toward the end of the winter rest period. If the bathed branches or plants were first exposed to the open air for two, three, or four weeks, under ordinary autumn or winter conditions,

and then forced in the hothouse, they showed the same advance over the unbathed portions as though they were placed in the hothouse immediately after the bath; also, the effect of the bath appeared to be local, as was evidenced by the behavior of bathed and unbathed buds on the same plant. Plants immersed beyond twelve hours suffered from lack of oxygen. When the bath temperatures suitable for forcing various shrubs are accurately worked out, it is believed that this method will largely displace etherizing as being a much more simple process.

In Normandy P. Noel reported success in retarding the flowering season of several varieties of plums, such as the Boston, Satsuma, Kelsey, etc., which flowered freely every year, but failed to form fruits owing to the frosts in early May. The roots of the trees were etherized, the ether being poured into a hole sixteen inches deep bored into the ground in the neighborhood of the roots, and the hole closed. Unsuccessful attempts to anesthetize the trees led to the conclusion that the beneficial effects of the ether in retarding growth were due to a refreezing of the soil through rapid evaporation of the ether rather than through its anæsthetic properties.

In summarizing his own work and the work of others relative to the effect of ether, chloroform, and other substances upon plants, W. Stuart, of the Vermont Station, concluded that anæsthetics and toxic substances, such as alcohol, acetone, and other similar agents employed in small amounts, as well as non-anæsthetic or non-toxic agents, such as freezing, vacuum, and desiccation, all arrest growth and remove the moisture from the plant tissues in a very similar manner, and result in a more or less decided growth acceleration. Hot water appears to impart a distinct shock to the cell protoplasm and tissues, acting also as a solvent upon the winter protecting scales enclosing the leaf and flowering buds, thereby hastening the winter forcing of shrubs. Taking into consideration all the factors which influence growth, it was concluded that thus far no one forcing substance may be said to be superior to all others, although ether, because of its more general use, has come to be regarded as the best anæsthetic to use in forcing plants.

PLANT BREEDING. Many new and improved varieties of fruits, vegetables, and ornamentals were announced during the year by amateur, commercial, and scientific breeders. Burbank's Wonderberry, so extensively exploited, was not proving a valuable addition to our economic fruit supply. Extensive variety tests of vegetables made by the United States Department of Agriculture showed that trade names for vegetables have little value for descriptive purposes, since various strains of the same varieties were found to have entirely different names.

In France, E. Griffon has made a study of the grafting of *Solanums* and other herbaceous plants for several years. He finds that seedlings grown from previously grafted plants show no unusual variations over those grown from ungrafted plants.

LITERATURE. Three valuable contributions to grape literature should be noted: *Foundations of American Grape Culture*, by T. V. Munson (Denison, Tex., 1909), is of value to viticul-

turists and botanists as well. *The Grapes of New York*, by U. P. Hedrick and associates of the New York State Station (New York State Sta. Rpt. 1907, pt. 2), is not local in scope, as its name implies, for it records the state of development of all the important American varieties of grapes. *Geschichte des Weinbaus unter besonderer Berücksichtigung der Bayerischen Rheinpfalz*, by F. Basserman-Jordan (Frankfort-on-the-Main, 1907, vols. 4), may well be considered an encyclopedia of German viticulture. Other prominent books were *L'Hybridation en Horticulture*, by G. Bellair (Paris, 1909); *The Orchid Stud-Book*, by R. A. Rolfe and C. C. Hurst (Kew, 1909); *The American Apple Orchard*, by F. A. Waugh (New York, 1908). Many popular books on fruit and vegetable growing, as well as on different phases of ornamental horticulture, appeared during the year.

HOSPITALS. The year 1909 was marked by a number of large gifts to hospitals. In New York, the Presbyterian Hospital received a bequest of \$1,000,000 from John S. Kennedy, to be used for construction purposes. The will of F. C. Hewitt gave to the Post-Graduate School and Hospital \$2,000,000, and to the Free Industrial School for Crippled Children and the Sheltering Arms Society of New York \$200,000 each. W. V. Lawrence, in addition to \$125,000 already given, added \$150,000 to his endowment of the Lawrence Hospital at Bronxville, N. Y. Mrs. Maria Tailer bequeathed \$25,000 to the New York University and Bellevue Hospital Medical College; \$5000 each to the Children's Aid Society and the New York Orthopedic Dispensary and Hospital. Ninety-six thousand dollars has been subscribed by the people of New York toward the endowment fund for the Lincoln Hospital. It is proposed to make this institution New York's monument to Lincoln, which medical and surgical leaders believe would not only be a most fitting tribute, but would be of great benefit to the sick and poor of the city. The new Jewish Maternity Hospital on East Broadway was dedicated January 24. The Gibb operating pavilion of the New York City Home for the Aged and Infirm on Blackwell's Island was opened on February 24. Dr. Ferris, chairman of the State Lunacy Commission, announced that a site for the proposed Mohansic State Hospital for the insane had been purchased at Yorktown Heights, N. Y. This site consists of 564 acres of land, 75 per cent. of which is tillable. It is the intention of the commission to spend about \$2,000,000 on the plant, in the erection of a complete hospital for 2000 patients. The Matteawan State Hospital for the Criminal Insane has purchased about 130 acres of farm land out of the appropriation of \$15,000 for this purpose by the State Legislature. The site for the Eastern New York Custodial Asylum for Defectives was selected at Thiells, Rockland county. It is proposed to name the colony Letchworth Village, in recognition of the services of William Pryor Letchworth in behalf of the defective wards of the State. Ex-Governor Odell has presented Newburgh with a hospital and camp for the treatment of tuberculosis patients. The plant consists of 4 acres of ground and a dwelling to be used as an administrative building. An infirmary costing \$25,000 was also erected. The Harrington Hospital for Children was dedicated

May 28 in Buffalo. In Pennsylvania, the new \$2,000,000 Hospitals for the Insane at Overbrook was opened June 11. The institution will accommodate 1300 patients. In Massachusetts, the Burnham Memorial Building, on the grounds of the Boston City Hospital, erected at a cost of \$150,000, was opened; the new Rufus S. Frost Hospital, Chelsea, was opened for inspection October 11. The formal opening of the Sydenham Hospital for Infectious Diseases in Baltimore took place April 3; the building will accommodate 32 patients. In Ohio, the new Union Hospital, between Philadelphia and Canal Dover, was dedicated March 17; the building accommodates 150 patients and cost \$17,000. The City Park Hospital was opened at Mason City, Iowa. In California, patients were received for the first time at the new Merritt Hospital, Oakland, on January 23; the building cost \$200,000 and has accommodations for 40 patients. The Mission Emergency Hospital at San Francisco was opened April 11. Among many other hospitals either opened or planned were the Sacred Heart Hospital of Spokane, costing \$500,000; a new hospital at Ogden, Utah, costing \$75,000; the Bethany Hospital at Kansas City, to cost \$150,000; the City Hospital of Little Rock, Arkansas; the St. Barnabas Hospital, Minneapolis, the latter costing \$60,000.

In Canada, a new hospital was opened in Montreal under the name of the Hospital St. Luc. Its work is especially among the school children of that city, particular care being paid to cases of eye, ear, nose, throat, and mouth diseases.

In Paris, the opening of the American Hospital took place on October 28. The hospital is located at Neuilly-sur-Seine, a suburb, and contains 25 beds in separate rooms, with bath-rooms, the equipment being according to the latest hygienic standards. The institution was founded by certain Americans residing in Paris, and will receive sick and needy Americans, who will be cared for free. Well-to-do Americans may likewise be received, under certain conditions. Two beds will be reserved for emergency cases without regard to the nationality of the patient. At Buch, a suburb of Berlin, a new municipal hospital for old people was opened, with accommodations for about 1500; the cost of the building was about \$1,560,000. There are in the city of Berlin altogether 2286 beds for invalids, which cost annually \$271,680. At Madrid, two well-equipped tuberculosis dispensaries were opened and placed in charge of leading physicians.

HOUGH, GEORGE WASHINGTON. An American astronomer, died January 1, 1909. He was born in Montgomery county, N. Y., in 1836, and graduated from Union College in 1856. In 1859-60 he was assistant astronomer at the Cincinnati Observatory, and from 1860 to 1874 was astronomer and director of the Dudley Observatory at Albany, N. Y. In 1879 he became director of the Dearborn Observatory and professor of astronomy in Chicago University, holding the latter post until 1887, when he became professor of astronomy at the Northwestern University. There he remained until his death. Professor Hough discovered more than 600 variable stars, but his most notable work was his observation in regard to the planet Jupiter. He invented many devices and instruments for astronomical observation. His

publications in scientific journals were numerous.

HOUSE FLY. See ENTOMOLOGY and INSECTS AND THE PROPAGATION OF DISEASE.

HOWARD, OLIVER OTIS. An American military officer, died October 26, 1909. He was born in Kennebec county, Maine, in 1830 and graduated from Bowdoin College in 1850. He then obtained an appointment to the Military Academy at West Point, from which he graduated in 1854. In the following year he was made acting professor of mathematics with the rank of first lieutenant at West Point. When the Civil War broke out he offered his services to the Governor of his native State and went to the front as colonel of the Third Maine Volunteers. He took part in the battle of Bull Run and for gallant service was created a brigadier-general of volunteers. At the battle of Fair Oaks he was twice wounded in the arm while leading his brigade in a charge against the enemy. It was necessary to amputate his arm on account of these injuries. On his recovery he returned to his regular corps and took part in the Pope Campaign in Virginia, participating in the second battle of Bull Run. He was promoted to the rank of major-general of volunteers of 1862. He succeeded General McPherson as commander of the Army and Department of the Tennessee, and his corps formed the right of General Sherman's army during the famous march through Georgia. For his part in this campaign General Howard was appointed brigadier-general in the regular army. He took a similar part in the campaign in the Carolinas and assisted in the operations which resulted in the surrender of General Johnston's army in 1865. He took a prominent part also in the battles of Chancellorsville and Gettysburg. For his services in the final campaign he was brevetted a major-general in the regular army. Following the Civil War, General Howard was assigned to duty in the War Department in the bureau of refugees, freedmen, and abandoned lands. He took part in several campaigns against the Indians in the West and in 1881 was appointed Superintendent of the Military Academy at West Point, serving in that capacity until the following year, when he was transferred as commanding officer to the Department of Omaha. He was afterwards commanding officer of the Department of the Atlantic, with headquarters at Governor's Island, New York City. General Howard was a zealous worker in behalf of the negroes and freedmen of the South, and he was the founder and at the time of his death president of the Board of Directors of the Lincoln Memorial University at Cumberland Gap, Tennessee. He was the author of a number of books and in 1907 wrote his war reminiscences. The degree of LL.D was conferred upon him by four different universities, and in 1884 the French government made him Chevalier of Honor. He was the last of the ranking army officers who commanded Union armies during the Civil War. In 1908 Congress passed a resolution which placed him on the retired list of the army as a lieutenant-general. He also received the thanks of Congress for meritorious service to the nation during the war.

HOWARD UNIVERSITY. An institution of higher learning founded in 1867 under the

Freedmen's Bureau. It is under the control of the Interior Department of the United States government. The enrollment for the year 1909 was 1205 students. These came from 35 States and from 9 foreign countries. Howard University is the only institution where the nation directly touches the education of the negro. It includes a school of medicine, school of law, school of theology, school of arts and sciences, teachers' college, department of manual arts, commercial college, and a preparatory department. The total disbursements during the year were \$154,845. The University has a number of scholarship funds and special funds for the assistance of students. These amounted in 1909 to \$174,077. The attendance in the various schools in 1909 was as follows. School of medicine, 409; school of law, 100; school of theology, 97; college of arts and sciences, 115; teachers' college, 112; department of manual arts, 227; commercial college, 87; preparatory department, 323. The president is Wilbur P. Thirkfield.

HOWE, WILLIAM WIRT. An American jurist, died March 17, 1909. He was born in Canandaigua, N. Y., in 1833. After graduating from Hamilton College, he practiced law in New York and St. Louis. He enlisted in the Union army and rose to the rank of major. Before the close of the Civil War he settled in New Orleans. From 1868 to 1873 he was associate justice of the Louisiana Supreme Court. The position of United States District Attorney was offered to him successively by Presidents McKinley and Roosevelt, and declined. In 1897 Judge Howe was elected president of the American Bar Association. He lectured before the law departments of many universities and wrote several studies of civil law, as well as municipal history of New Orleans.

HOWLAND, ALFRED CORNELIUS. An American artist, died March 17, 1909. He was born at Walpole, N. H., in 1838 and studied under Schultz and Eppindale in Boston. He afterwards went to Düsseldorf and Paris. In the latter city he was a pupil of Lambert. Among his best known works in genre and landscape are: "Sunlight Path" (1871); "Ford's Glen" (1878); "Monday Morning" (1879); "The Gossips" (1880); "Rendezvous of the Veterans" (1884), and "The Coming of the Circus" (1886).

HUDSON FULTON CENTENARY. See CENTENARIES and ANNIVERSARIES.

HUDSON MEMORIAL BRIDGE. See CONCRETE and BRIDGES.

HUGHES, CHARLES JAMES, JR. An American public official, United States Senator (Democratic) from Colorado. He was born in Kingston, Mo., in 1853 and graduated from Richmond College in 1871. He studied law at the University of Missouri and in 1877 began the practice of law in Denver, Colorado. He engaged actively in politics and was Democratic Presidential elector in 1900. From 1903-6 he was professor of mining law at Harvard Law School, and also acted as professor of mining law at the Denver Law School. He acted as counsel in important mine litigation in the United States courts, and is considered to be one of the most eminent lawyers of the State. In the primary election of November, 1908, he

received the largest number of votes as candidate for the United States Senate to succeed Henry M. Teller, and on January 19 was elected by the legislature to that office.

HUGHES, DAVID CHARLES. An American Baptist clergyman, died December 15, 1909. He was born at Tredegar, Wales, in 1832. He learned the printer's trade, studying in the meantime for the ministry. He came in 1855 to the United States and joined the Methodist denomination, receiving assignments to preach in Orange and Ulster counties, N. Y. He continued his studies and for a time was at Wesleyan University. He then joined the Baptist denomination and became pastor of the Baptist Church at Glens Falls, N. Y. He was afterwards pastor at Oswego, N. Y., and Newark, N. J. In 1854, after a brief service as one of the secretaries of the American Bible Union, he became pastor of the Union Avenue Baptist Church at Brooklyn, where he remained until 1884. He afterwards served pastorates in Jersey City, New York City, Scranton, and Brooklyn, N. Y. He retired from active pastoral work in 1901. He was the father of Governor Charles E. Hughes of New York.

HUGHES, ROBERT PATTERSON. An American army officer, died October 28, 1909. He was born in Pennsylvania in 1839 and was educated in Jefferson College. He enlisted as a private in the Twelfth Pennsylvania Infantry in 1861 and was honorably discharged in August of the same year. He was commissioned first lieutenant in the Eighty-fifth Pennsylvania Infantry in October, 1861, and was promoted to captain in 1862. He became colonel of the One Hundred and Ninety-ninth Pennsylvania in 1864 and was brevetted colonel in 1865. He was mustered out of volunteer service on June 28, 1865, and in 1866 he was appointed captain of the Eighteenth United States Infantry. He was made major and inspector-general in 1885, lieutenant-colonel in 1885, colonel in 1888, brigadier-general in 1898. He was honorably discharged in 1899 and the same year made brigadier-general of volunteers. In 1902 he was made major-general and was retired by operation of law in 1903. In 1898 he was made Provost Martial General of Manila and suburbs. In 1899 he commanded the first military district in the Philippine Islands and in 1900 the Department of the Visayan Islands.

HUNTINGTON, WILLIAM REED. An American Protestant Episcopal clergyman, died July 26, 1909. He was born in Lowell, Mass., in 1838, and graduated from Harvard College in 1859. He studied for the ministry and in 1861 became a curate of Emmanuel Church in Boston. In the following year he was chosen rector of All Saints' Church in Worcester, Mass. Here he remained for 21 years, until he was called to the rectorship of Grace Church, New York, in 1882, to succeed the late Bishop Potter. Dr. Huntington, during his service as rector of Grace Church, which continued until his death, was one of the most prominent and influential clergymen in New York City. He was perhaps the strongest debater and extempore speaker of his denomination, and was also its leading historical authority. He took a notable part in the revision of the Protestant Episcopal Prayer Book, and was chairman of the committee which, for nine years, was engaged on this work. His

chief fame, however, rests not on his power as an orator or historian, but on the vast amount of labor he accomplished as rector of his parish. Although Grace Church was fast becoming a "down town" church, he steadfastly refused to consider any project for its removal farther north. He organized and supervised many important movements in the church for the aid and advancement of the poorer members of his parish, while the religious aspects of his ministry were not allowed to wane.

In November, 1908, on the occasion of the twenty-fifth anniversary of his ministry in Grace Church, Dr. Huntington expressed the desire to resign. A fund of over \$40,000 was raised by members of his congregation for his personal use. In response to the protests of his parishioners, he withdrew his resignation, while the fund was made the basis for a "rector's discretionary fund," to be used as its title implies.

During the panic of 1907 Dr. Huntington brought into use the word "meliorist," in contradistinction to "pessimist" and "optimist," as signifying a hope based on confidence and faith. Dr. Huntington was progressive in his views of church doctrine and polity, and was sometimes spoken of as a radical. He was a prolific writer, and was the author of a book of verses. Among his works are *The Church Idea* (1870); *The Causes of the Soul* (1891); *Peace of the Church* (1891); *Short History of the Book of Common Prayer* (1893); *A National Church* (1898); *Psyche, a Study of the Soul* (1899); *Sonnets and a Dream* (verse, 1899).

HUNTLEY, ELIAS DEWITT. An American Methodist Episcopal clergyman and educator, died February 12, 1909. He was born in Elmira, N. Y., in 1840 and graduated from Genesee College in 1866. In the same year he entered the ministry. He was for six months professor of ancient languages at the Genesee Wesleyan Seminary, and was later presiding elder of the Madison, Wisconsin district. From 1879 to 1883 he was president of Lawrence University. He resigned to become pastor of the Metropolitan Church, Washington, D. C. From 1883 to 1886 he was chaplain of the United States Senate. He served in pastorates at Baltimore and Annapolis, and at Trinity Church, Washington. In 1881 he was a delegate to the Ecumenical Methodist Conference in London.

HYDROGEN. See CHEMISTRY, INDUSTRIAL.

HYGIENE. The International Office of Public Hygiene was put on a practical footing in Paris in 1909. It was first proposed at the International Sanitary Conference of Paris in 1903 and again at a conference held in Rome in 1907. The object of the office is to supply economically and promptly all information relative to public hygiene, especially in regard to infectious diseases such as cholera, plague and yellow fever, to the twelve countries signatory to the instrument. This agreement was ratified by the President of the United States February 15, 1908, and was definitely authorized for a period of seven years. The information collected, being both practical and scientific in character, is expected to be of great service in the quarantine and sanitary administration of the interested nations. President Taft, during 1909, renewed the efforts made to secure a satis-

factory national public health policy by the establishment of a national bureau of public health. Such an organization would have for its object the binding together of the various existing public health agencies and their expansion and necessary coordination.

According to recent experiments made by Major Horrocks of the English army, there is some foundation for the popular belief that sewer-gas may occasion mysterious outbreaks of diseases such as pneumonia, peritonitis, typhoid and malarial fevers, croup and diphtheria. He introduced known bacteria, such as *Bacillus prodigiosus* and *Bacillus coli*, into drainage systems, in the upper parts of which he exposed dishes of culture media. He recovered his test bacteria in various parts of the systems, in one case even at the height of 50 feet above the traps, showing that specific bacteria present in traps and drains may get into the air by splashing and bursting of bubbles or even from the surface of liquids in quiet motion. The apparent discrepancy between the results of various investigators led Winslow to study the question. He used a new method, by which the bacteria in a measured volume of air drawn into large culture-bottles were allowed to settle on media in the bottom of the bottles. Foaming bacterial emulsions were poured rapidly into water-closets and samples of air collected at the crown of the upper trap. In this experiment, however, 43 out of 44 samples of air contained no bacteria. The actual conditions as they exist in different plumbing systems were then studied, pipes were tapped at various places and samples of air drawn into culture-bottles. In 197 tests 48 samples gave bacteria capable of development at 37 degrees C.; only 4 contained sewage bacteria, and in collecting these samples of air mechanical spraying of sewage took place at the point of collection. The results of Winslow's experiments indicate that bacteria may be ejected from liquids in sewers into the air above, but at the same time they show that the general air of house drainage systems is fairly free from bacterial life, and there is therefore little reason to believe that sewer air is to be feared as a medium of conveying infectious diseases.

ICELAND. A Danish colony, with an area of 40,456 square miles and a population (1901) of 78,470. The total imports from Denmark alone amounted in 1907 to 6,096,000 kroner; (1 kroner=26.8 cents) the exports, to 5,140,000 kroner. Iceland is the chief of the Danish dependencies, and has its particular constitution and administration. The legislative power is vested in the Althing, 34 of whose members are elected by popular suffrage, and 6 nominated by the King. The responsible head of the administration is a minister (M. Hannes Hafstein in 1909), nominated by the King and residing at Reykjavik. For additional information relating to Iceland, see DENMARK.

ICE YACHTING. The weather in 1909 was unfavorable for ice yachting and all events which had been scheduled in the Shrewsbury River were abandoned. The Hudson River and Hyde Park Ice Yacht Clubs, however, held several contests, the most important being the final 10-mile race for the A. De Groff Point Cup, awarded to the club scoring the most points in the season. Twelve yachts entered the event which was won by the *Mink*, sailed by A.

Rogers, the time for the distance being 33 minutes 17 seconds.

IDAHO. One of the Western Division of the United States. Its area is 84,313 square miles, of which 534 square miles are water. According to a Federal estimate made in 1909 the population in that year was 227,674. The capital is Boise.

MINERAL PRODUCTION. The value of the mineral production of the State in 1908 was \$15,256,382, which was a marked decrease over the value of the product of 1907, which was \$21,300,612. The most valuable of the mineral products of the State is lead, of which 98,464 tons, valued at \$8,270,576 were produced in 1908 as compared with 112,569 tons valued at \$11,032,314 in 1907. Next in point of value ranks silver, of which 7,558,300 fine ounces, valued at \$4,042,900, were produced in 1908, a falling off in quantity and still more in value from the product of 1907, which was 7,886,400 fine ounces, valued at \$5,206,300. Gold was produced to the amount of 69,829 fine ounces, valued at \$1,443,500, an increase over the product of 1907, which was 60,754 fine ounces, valued at \$1,255,900. Copper showed a decrease, both in the amount and value over 1907. The comparative figures were as follows: 1908, 7,256,086 pounds, valued at \$957,803; 1907, 9,707,299 pounds, valued at \$1,941,460. The other mineral products of the State are inconsiderable in value and quantity. Among them are lime, salt, stone, and zinc.

The gold production in 1909 was estimated by the Director of the Mint at 67,207 fine ounces, valued at \$389,300. The silver production was 7,054,500 fine ounces, valued at \$3,669,500.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in the State in 1909, according to the figures of the United States Department of Agriculture, were as follows: Corn, 184,000 bushels valued at \$138,000 from 6000 acres; winter wheat, 9,135,000 bushels valued at \$7,947,000 from 315,000 acres; spring wheat, 5,330,000 bushels, valued at \$4,637,000 from 205,000 acres; oats, 7,788,000 bushels, valued at \$3,894,000 from 175,000 acres; barley, 2,480,000 bushels, valued at \$1,462,000 from 62,000 acres; rye, 86,000 bushels, valued at \$60,000 from 4,000 acres; potatoes, 5,000,000 bushels, valued at \$2,400,000 from 25,000 acres; hay, 1,359,000 tons, valued at \$12,367,000 from 477,000 acres. The wheat production in the State has increased steadily since 1900. The winter wheat crop of 1909 showed a large increase over that of 1908, when there were produced 6,960,000 bushels. The acreage increased from 232,000 to 315,000. Spring wheat also showed a marked increase, rising from 3,937,000 bushels in 1908 to 5,330,000 bushels in 1909, while the acreage increased from 155,000 to 205,000. The hay crop in 1909 was slightly smaller than in 1908, when 1,410,000 tons were produced. The average yield of hay in Idaho is the third largest in the United States. Idaho is one of the few States producing beet sugar. The annual production is about 40,000 long tons from about 30,000 acres. The number of farm animals on January 1, 1910, was as follows: Horses, 163,000; mules, 2000; cattle, 340,000; sheep, 4,248,000; swine, 143,000. Idaho ranks fourth in the total production of wool, the amount in 1909 being estimated at 21,450,000 pounds.

EDUCATION. The school attendance in 1909

was 87,747. The number of teachers employed was 2095 at an average salary of \$72.50. The expenditures for education were \$2,162,549. Among the new laws passed by the legislative session of 1909 were those establishing rural high schools, and providing for teaching agriculture in these schools. The State Superintendent is required to appoint a sufficient number of examiners to read and grade the papers of all applicants for first grade, second and third grade county certificates. Examiners are to be paid a sum not exceeding \$5 a day for their services, together with actual mileage.

FINANCE. According to the report of the State Treasurer there was a balance in the treasury on November 1, 1909, of \$1,074,327. The balance on November 1, 1908, was \$601,186. The bonded indebtedness of the State was \$1,734,500, and there were in the State sinking fund on November 1, 1909, \$231,503. The income is approximately \$1,000,000, while the expenditures per year approximated \$800,000. By direct taxes about \$600,000 are raised and by fees, \$200,000.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State are the Idaho Soldiers' Home at Boise which contains about 120 inmates; the Idaho State Insane Asylum, about 250 inmates; the Northern Idaho Insane Asylum at Clearwater; the Idaho Industrial Reform School in Fremont county, with about 70 inmates; and the Idaho State Penitentiary in Ada county, with about 220 inmates. The State also maintains the Idaho Industrial Training School at St. Anthony. In this school there are forty inmates, including boys and girls.

POLITICS AND GOVERNMENT. On January 12, the legislature reelected Weldon D. Heyburn United States Senator. The Democratic vote was divided between C. O. Stockslager and W. W. Woods. The most important legislation passed in the session of 1909 was the local option bill, which passed the legislature on February 15. (See below.) During the year local option elections were held in 14 of the 23 counties and the Prohibitionists won in all but two. In addition three counties went on a "dry" basis without the intervention of a local option election under the law giving commissioners power to refuse to grant licenses. The most important industrial development was in connection with the opening to settlement, through the provisions of the Carey Act, of about 750,000 acres of land, increasing the total irrigated and to be irrigated by the Carey Act systems already started to about two and a quarter million acres, and the total cultivated area of the State to about seven million acres.

There were no events in the State during the year comparable in interest with those which led up to the conviction of Harry Orchard of the murder of Governor Steunenberg by the explosion of a dynamite bomb December 30, 1905. Orchard made a sensational confession in 1907 at the trial of Charles H. Moyer, George A. Pettibone and William D. Haywood, officials of the Western Federation of Miners, in which he accused these officials of having employed him to bring about the death of Governor Steunenberg and others. These men were acquitted and the trial of Orchard himself followed in 1908. He pleaded guilty on March 10 of that year, and on March 18 was sentenced to death. The sen-

tence was, however, commuted by the State Board of Pardons to imprisonment for life.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: A law was passed amending the law regulating the period of employment in underground mines. Measures were enacted regulating the liquor traffic by county local option. An employers' liability law was enacted restricting defenses of fellow workmen and assumption of risk. It provides for the recovery, in case of death, of not more than \$5000. Measures were enacted providing for the protection of orphans, homeless, neglected or abused children. A primary election law was enacted with provisions permitting expressions of choice for United States Senator. Measures were passed regulating the operation and equipment of mines. The issuance of passes or free transportation to certain State and county officers over electric and steam railroads and steamboats was prohibited. Wholesale liquor dealers were forbidden an interest in places doing a retail business. See **ELECTORAL REFORM.**

OFFICERS: Governor, James H. Brady; Lieutenant-Governor, Lewis H. Sweetzer; Secretary of State, Robert Lansdon; Treasurer, Charles A. Hastings; Auditor, S. D. Taylor; Attorney-General, D. C. McDougall; Superintendent of Education, S. Belle Chamberlain; Commissioner of Insurance, C. D. Gosalind; Superintendent of Agriculture, J. P. Fallon—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Isaac N. Sullivan, Republican; Associate Justices: James F. Ailshie, Republican; George H. Stewart, Republican; Clerk, I. W. Hart, Democrat.

The State Legislature of 1909 was composed of 13 Republicans, and 10 Democrat-Fusionists in the Senate, and 44 Republicans and 4 Democrat-Fusionists in the House. The State Representatives in Congress will be found in the section *Congress* of the article **UNITED STATES.**

IGLESIAS, MIGUEL. A Peruvian soldier and statesman, died November 8, 1909. He was born in 1822 at Cajamarca. He occupied many official positions, including those of the secretary of the treasury and secretary of state previous to the war with Chile. On the breaking out of that struggle he took an active part in the field. His stubborn defense of Lima in 1881 was especially notable, but he was finally forced to surrender. He was held prisoner by the Chileans but escaped and at once set about to secure peace between the two countries. For many years he was a member of the Peruvian Congress, but seldom went to Lima where Congress met. His service was performed by an alternate, which is permissible under the constitution of Peru. He was governor of the province of Udina where he had vast estates.

ILLINOIS. One of the North Central Division of the United States. Its total area is 58,339 square miles. According to a Federal estimate made in 1909, the population in that year was 5,717,229.

MINERAL PRODUCTION. The most remarkable development in the mineral production of the State in the last few years has been the rapid growth of the petroleum product. The State now ranks third, being surpassed only by Oklahoma and California fields. The product of 1908 showed an increase over that of 1907 by nearly 10,000,000 barrels. In the former year

33,685,106 barrels were produced as compared with 24,281,973 barrels in 1907. The value of the product of 1908 was \$22,648,881 as against a value of \$16,432,947 for the product of 1907. Few pools of importance were opened during the year and the production came chiefly from the pools that had been fairly well defined in the previous year in Clark, Crawford and Lawrence counties. At Junction City, north of Centralia oil was discovered after a shot in a coal mine. The oil was found in sandstone where a fault blocked an entry about 650 feet from the surface. About 200 miles of the pipe line from Stoy, Illinois, to Rixford, Pennsylvania, were completed during the year. Illinois ranks second among the coal-producing States, being surpassed only by Pennsylvania. The production in 1908 was 47,659,690 short tons with a value of \$49,978,247. This showed a decrease as compared with 1907 of 3,657,456 short tons, and a decrease in value of \$4,709,135. These decreases are small compared with those of other States and may be attributed to the fact that relatively small quantities of coal were used in the steel and iron trade where most of the effects of the business depression of 1908 were felt. The total number of men employed in the coal mines of the State during the year was 68,035. There was notable freedom from explosions of either gas or dust entailing loss of life or serious injuries. During the year nine men were killed by gas explosions. In the fiscal year ended June 30, 1908, 183 men were killed and 819 injured in the coal mines of the State. The only serious interference with mining operations during the year was the shut-down or suspension in April and May when the operators and miners attempted to reach an agreement on wage scale. Throughout the remainder of the year there were no serious strikes or shut-downs caused by labor troubles. There were manufactured in 1908, 362,182 short tons of coke valued at \$1,538,952, which was a decrease from the production and value of 1907, which was 372,697 tons and \$1,737,464 respectively. There were six coking establishments in the State with 430 ovens built and 40 building. The State ranks tenth in the production of coke. The cement making industry is an important one in the State. In 1908 there were 3,211,168 barrels valued at \$2,707,044 produced, as compared with 2,036,092 barrels valued at \$2,632,576 in 1907. Illinois ranks fourth in the extent and value of its clay products. In 1908 these products were valued at \$11,559,114, a considerable decrease from the value of the product of 1907, which was \$13,220,489. The total value of the mineral products of the State for 1908 was \$122,900,688 as compared with a value of the product of 1907 of \$145,768,464.

The chief influences that have affected the coal mining industry of the State have been the increased use of oil and gas for fuel and also the use of coke or of Eastern coals which has followed the agitation in regard to the suppression of smoke. As a result there was a decreased production in 1909. There was considerable decline in the production of petroleum in 1909 but this was offset in its significance for the future by the discoveries in several localities of deeper oil sands, some of which gave large yields.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to the

figures of the United States Department of Agriculture were as follows: Corn, 369,770,000 bushels, valued at \$192,280,000 from 10,300,000 acres; winter wheat, 31,494,000 bushels, valued at \$32,754,000 from 1,810,000 acres; oats, 159,064,000 bushels, valued at \$60,444,000 from 4,346,000 acres; barley, 868,000 bushels, valued at \$451,000 from 31,000 acres; rye, 1,264,000 bushels, valued at \$935,000 from 71,000 acres; potatoes, 14,924,000 bushels valued at \$9,104,000 from 164,000 acres; hay, 4,135,000 tons, valued at \$40,936,000 from 2,852,000 acres; tobacco, 1,125,000 pounds, valued at \$123,750 from 1500 acres. The State ranks first in the production and acreage of corn. The crop of 1909 was greatly in excess of that of 1908, which was 298,620,000 bushels. The acreage increased from 9,450,000 acres to 10,300,000 acres. Illinois occupies first rank also in the production of oats. The crop of 1909 was greatly in excess of that of 1908, which was 94,300,000 bushels. The acreage increased from 4,100,000 acres to 4,346,000 acres. In the production of hay the State ranks among the most important. The crop in 1909 was less than that of 1908, which was 4,743,000 tons. The wheat crop showed a steady increase since 1902. The number of farm animals in the State at the beginning of 1910 were as follows: Horses, 1,655,000; mules, 152,000; dairy cows, 1,232,000; other cattle, 1,974,000; sheep, 817,000; swine, 3,772,000. The State ranks first in the number of horses, second in the number of swine and fourth in the number of dairy cows. The wool clipped in 1909 was 4,567,680 pounds.

FISHERIES. The total product of the fisheries of the State for the year ending December 31, 1908, was \$1,413,240. The most important of the fish taken in point of value was German carp, of which 21,342,300 pounds valued at \$562,410 were taken. Next in point of value were mussel shells, 39,809,100 pounds, valued at \$184,250; catfish and bullheads, 1,993,600 pounds, valued at \$92,810; crappie, 1,260,600 pounds, valued at \$33,840; dogfish, 1,349,000, valued at \$17,230; drum or sheepshead, 650,700 pounds, valued at \$19,570; turtles and terrapin, 508,400 pounds, valued at \$21,230. Pearls and slugs were taken to the value of \$170,380. Among other important fish were buffalo, black bass, chub, herring, lake trout, and frogs. There were 3048 independent fishermen in the State, 1349 wage-earning fishermen were employed. There were 18 vessels engaged in the fisheries of the State valued at \$38,300. The cash capital invested in the fisheries of the State was \$141,170.

EDUCATION. The school attendance for the school year 1909 was 997,453. There were 5479 male teachers employed. Of these 2893 were in ungraded schools and 2586 in graded schools. There were 23,353 female teachers, of whom 8376 were in ungraded schools and 14,977 were in graded schools. The average salary for male teachers was \$84.54 and for female teachers \$63.49. The expenditure for education during the year was \$32,973,881.

FINANCE. The report of the State Treasurer for the biennium, October 30, 1906, to September 1, 1908, showed a balance in the treasury on October 1, 1906, of \$4,990,041. The receipts for the period were \$14,697,077, while the total disbursements were \$16,332,679, leaving a balance in the treasury October 1, 1908, of \$3,354,439. The principal of the bonded debt of the State

on October 1, 1908, was \$17,500. The chief disbursements are for the State school fund, for the State game protection fund and the State food commissioner's fund.

CHARITIES AND CORRECTIONS. During 1909 the State made a radical change in the system of the administration of its 17 State charitable institutions. This was brought about as the result of a campaign conducted by the State Board of Charities under the direction of Governor Deneen to remodel the service and equipment of the State institutions. The first step was taken in 1905 when a law was passed placing all the employees, with a few exceptions, of the State charitable institutions under the State civil service law. Beginning in 1906 the system of medical administration was completely modernized and made uniform. A State Psychopathic Institute was established to teach physicians in the State service and for research work in the treatment and causes of insanity. The final step in the campaign of advancement came in June in the passage by the legislature and the approval by the Governor of a new charities administration law. The new system creates a centralized administration of all the institutions by one Board, called the Board of Administration, composed of five members. A centralized system of inspection, criticism and recommendation by the Board, known as the Charities Commission, made up of five non-salaried members, was also put into effect. This body is in no way responsible for administration and therefore free to criticize the executive branch of the service. The inspectional and critical service is extended by the new law beyond the central Charities Commission into the several institutions in the form of a non-paid board of visitors for each, and the service is still further extended to each county almshouse and jail in the form of county auxiliary boards, one for each county, each having three members. The board of visitors and the county auxiliary boards must report to the Charities Commission. The new law contains every advanced idea in the administration of public charities that has been tried successfully in other States, especially in the service of the insane; and is unique among American public charity statutes. Some of the names of the institutions were changed by the new law so as to eliminate the words "insane" "feeble-minded," and "asylum" from the legal nomenclatures of the State. The charitable institutions of the State are as follows: The Elgin State Hospital, at Elgin; the Kankakee State Hospital, at Kankakee; the Jacksonville State Hospital, at Jacksonville; the Anna State Hospital at Anna; the Watertown State Hospital at Watertown; the Peoria State Hospital at South Bartonville; the Chester State Hospital at Menard; the Lincoln State School and Colony at Lincoln; the Illinois School for the Deaf at Jacksonville; the Illinois School for the Blind at Jacksonville; the Illinois Industrial Home for the Blind at Chicago; the Illinois Soldiers' and Sailors' Home at Quincy; the Soldiers' Widows' Home at Wilmington; the Illinois Soldiers' Orphans' Home at Normal; the Illinois Charitable Eye and Ear Infirmary at Chicago; the State Training School for Girls at Geneva, and the St. Charles School for Boys at St. Charles.

POLITICS AND GOVERNMENT. The election of Governor Charles S. Deneen on Novem-

ber 2, 1908, was won by a plurality of only 23,164 votes over his Democratic opponent, Adlai E. Stevenson. As a result, a recount of votes was claimed by the Democrats on the plea that Stevenson was elected. A joint legislative committee was therefore appointed in the legislature of 1909 to which the subject was referred. As a result of the investigations of this committee the report of the majority was adopted recommending that Stevenson's petition be dismissed. This action declared Charles S. Deneen legally elected Governor of Illinois, and he was inaugurated on January 18. The principal recommendations in his inaugural address were: Immediate legislation providing for the construction of the \$20,000,000 deep waterway, authorized by a vote of the people and also providing for the development of the water power of the State; the extension of the merit system instituted in the charitable institutions to all other branches of the State's public service; the completion and the physical rehabilitation of the institutions on which work had been interrupted by lack of sufficient appropriation by the legislature; more effective laws for the prevention of blindness, and the removal of the adult blind from Jacksonville to Chicago; amendments to the primary law to prevent frauds and to prohibit the undue expenditure of money; a further revision of the insurance laws; the creation of a State Board of Education and the revision of the State's school laws; more adequate protection of the safety of persons employed in mines and in other dangerous callings.

The legislature was in session until June 3. It failed to pass the waterway bill advocated by Governor Deneen. The inheritance tax law was amended and the charities bill was passed. The anti-local option forces failed in their efforts directed at a dismemberment of the existing local option statute. The most important measures passed at this session of the legislature will be found noted in the paragraph *Legislation below*.

On June 16 the State Supreme Court for the third time declared invalid the Illinois primary law, and for the third time the State was without a primary election law. This law was passed in 1908 and went into effect on July 1 of that year. The act was declared unconstitutional because of defects in the provision relating to the qualifications of voters and because of its lack of provisions for cumulative voting for the nomination of candidates to the General Assembly. As a result of this decision the indictments returned by the grand jury which investigated the alleged primary frauds in the State primaries of August, 1908, were quashed as they were voted on provisions of a law which did not exist. The primary law had been supported by Governor Deneen at the time of its passage and following this decision he at once began a campaign for the enactment of a new law. He declared that an extraordinary session of the legislature would be called to enact such a law, and also to take action on the deep waterway plans which had failed in the regular session. The extraordinary session met on December 14. Bills for primary election laws, drawn with the approval of Governor Deneen, were at once introduced. These bills were declared to be broader in scope and finer in detail than any primary act on the statute books of the United States. Five

bills relating to the subject of primaries were introduced. The first of these was a simple, direct plurality primary law for all offices except for Representatives in the General Assembly, and for city, village and incorporated towns, township and school offices. It provided for an advisory vote upon United States Senators and for President and Vice-President of the United States. The second bill carried this enactment into cities of 5000 or more. The third bill provided for direct nomination of the members of General Assembly, and the fourth provided for nomination of municipal officers by petition or by referendum vote of a city wishing to take advantage of the law. The primary system it was provided might be re-adopted by a city by referendum vote. No action was taken on these bills previous to the adjournment of the legislature over the Christmas holidays. See **ELECTORAL REFORM**.

On May 26 William Lorimer (q. v.), while holding the office of Representative in Congress from the Sixth Illinois District was elected United States Senator to succeed Albert J. Hopkins. The election of Senator Lorimer ended one of the most stubborn and prolonged political battles in the history of Illinois politics. On January 19 both houses of the legislature took the first ballot for the election of Senator and from that date to May 26 a deadlock was maintained, no candidate receiving the requisite majority of 103 votes. Senator Hopkins was a candidate for reelection. Throughout the struggle Mr. Lorimer did not appear as an active candidate until shortly before his election. He had been, however, for years one of the strongest figures in Illinois politics.

In September the law prohibiting women employed in factories, etc., from working more than ten hours a day, passed by the legislative session of 1909, was declared unconstitutional by Judge Tuthill of the Cook County Circuit Court. This made the law ineffective until passed upon by the State Supreme Court. The suit which led to the decision was brought by two women, employees of a paper box concern, who swore that if they were restricted to ten hours of labor they could not earn enough to support those dependent upon them. Judge Tuthill held that the law violated the freedom of contract. As a result of elections held on November 2, saloons were ousted from three counties in the State. The no-license party carried the five precincts in Calhoun, Morgan, Scott and Polk counties necessary to make these counties entirely dry. Five precincts were lost in Pulaski county, which goes back to the "wet" column. The net result was the increase of three in the number of counties entirely dry, making a total of 39. Jacksonville, which was the only large town voting, was won by the no-license party by a majority of 202, as compared with 774 in 1907. In the election held on April 20, 41 of the 72 towns and villages in the State which voted were won by the license party. See **ELECTORAL REFORM**.

OTHER STATE EVENTS. On January 11, as the result of an explosion in the Leiter mine at Zeigler, 26 miners were killed. One of the most terrible disasters in the mining history of the country occurred at Cherry, a mining village on the Chicago, Milwaukee & St. Paul Railway near Spring Valley on November 13. Nearly if not quite 400 men were entombed in the St. Paul Mine as a result of fire which originated

in a stable in the second level of the mine. On November 20, 21 of these miners were rescued. The others perished. A band of twelve rescuers who volunteered to go into the mine following the first discovery of the disaster, lost their lives, bringing the total number of lives lost up to probably 411. Not all the bodies were recovered at the end of the year. On November 11 a mob estimated to number about 10,000 people lynched two men, one a negro and the other a white man, at Cairo. The negro had been accused of atrociously murdering a young woman, and because of the state of public opinion against him he had been taken by the sheriff out of town and hidden in the woods. Several thousand people, however, after persistent search found him and took him into town where he was hung and shot. The mob then broke into the county jail, seized a white man charged with wife murder and hung him in the streets. Laxity in the enforcement of the criminal law for several years was generally admitted to have caused this outbreak of mob violence. Cairo was placed under military rule for several days by Governor Deneen. On July 11 a tornado wrought great havoc in Xenia, Pana and other towns in the State. On August 22 a fire at Decatur destroyed 19 business establishments in the city and damaged six others. The total loss was over \$1,000,000.

CHICAGO. As a result of the primary elections held on February 24, I. N. Powell was nominated for city treasurer by the Republicans and Harry Hildreth, Jr., by the Democrats. The total vote cast was 92,472, against 217,000 in the primaries of the previous August. At the election held on April 6, Powell, the Republican candidate for treasurer, was elected by a majority of 5698 votes over the Democratic candidate. Eighteen Republicans and eighteen Democrats were elected aldermen, and F. D. Connelly, Democrat, was elected city clerk. Control of the new Council was safely vested in the "reform" element of that body. The proposal to levy a special tax for the establishment of a tuberculosis sanitarium was carried by a large majority. Proposals to annex Evanston and Cicero were defeated by the voters of those suburbs. The results were largely due to the efforts of the Municipal Voters' League, which has been active for years in the fight for better government of the city. The attempt of the advocates of no-license to have the people vote at this election on the question of excluding saloons from the city under the local option law fell through from inability to secure the necessary 100,000 petitioners to place the question on the ballot. Less than 50,000 names were obtained. A new city charter was introduced into the legislature on March 23, but it was defeated in both the Senate and the House of Representatives.

The Commercial Club of Chicago, which for nearly three years had been engaged upon the preparation of a plan for the improvement of the city, made its report in the summer. The work was in charge of Daniel H. Burnham, Chief Architect and Director of Works at the World's Columbian Exposition of 1893, to which exposition the plan of the improved city is directly due. Edward H. Bennett and Charles Moore were associated with Mr. Burnham in the preparation of the report. The plan contemplates many elaborate improvements, especially in the water front of the city, and in the cre-

ation of new parks and playgrounds. Attention is given also to the betterment of commercial facilities, methods of transportation and to the increase of convenience. Its main features are: First, the improvement of the lake front; second, the creation of a system of highways outside the city; third, the improvement of railway terminals and the development of a complete traction system for both freight and express; fourth, the acquisition of an outer park system and parkway circuits; fifth, a systematic arrangement of streets and avenues within the city in order to facilitate the movement to and from the business district; sixth, the development of centres of intellectual life and civic administration, so related as to give coherence and unity to the city. It is not intended that these improvements shall be made at once, but it is hoped that they may become the general plan upon which the city will develop in coming years.

A modification of the budget system devised and advocated by the New York Bureau of Municipal Research will be used in the preparation of the municipal appropriations of the city for 1910. By this system a careful record will be made of all expenditures and other improvements will be made.

Investigations into alleged corruption of city officials were carried on during the year. As the result of deliberations of the grand jury, indictments were found against Inspector Edward McCann, several city officials and thirteen resort keepers. This was in the latter part of July and the September grand jury continued the investigation. Inspector McCann after trial was found guilty on September 24 of extorting bribes from resort keepers. In September, after investigation by State's Attorney Wayman, conditions were found to exist in the Cook county jury commissioners' office, as a result of which it was charged jurors had been "fixed." The October grand jury, after examining into these charges, declared that the jury system was fraught with fraud and irregularity. The grand jury's report charged that the absence of records required by law to be kept, and the system in vogue and the methods pursued in the jury commissioners' office had given the widest latitude for the manipulation of jurors, for the substitution of names and for permitting the selection of jurors to rest in the personal choice of employees of the office or of the commissioners themselves. On August 4, George M. Shippy resigned as chief of police of the city as the result of ill health, and he was succeeded by Colonel Le Roy Steward.

On November 23 William J. Moxley was elected Congressman from the Sixth Congressional District, comprising a part of the city of Chicago. The election was to fill the vacancy caused by the election of William Lorimer as United States Senator. The contest was of interest as being the first Congressional election after the tariff bill had been passed. Mr. Moxley, who endorsed the tariff law and opposed the movement against Speaker Cannon, received 14,623 votes to 8342 votes for Carl L. Barnes, Independent Republican, and 6435 for Frank S. Ryan, Democrat. The total number of votes for all candidates, 30,225, showed a marked decrease from that in the election of 1908, when 32,540 votes were cast for Lorimer, and 53,254 for all the candidates for the seat. Speaker Cannon took part in the campaign, defending his

course as Speaker. On July 29 Mrs. Ella Flagg Young was elected Superintendent of the Chicago public schools by the Board of Education to succeed E. G. Cooley, resigned. In October the Appellate Judiciary confirmed the sentence imposed by the trial judge on John R. Walsh, sentencing him to five years in the Federal prison for violating the national banking laws in the management of the Chicago National Bank. The closing of the bank caused also the Home Savings Bank and the Equitable Trust Company to go out of business, Walsh having been at the head of all three. For four years Walsh had fought the government's prosecution in this case.

On December 1, receivers were appointed for the Illinois Tunnel Company and the Chicago Warehouse and Terminal Company, having \$75,000,000 of securities and being subsidiary corporations of the Chicago Subway Company. This action was taken to safeguard the properties in the custody of the Federal courts and to prevent a multiplicity of suits in various courts and consequent dismemberment and destruction of the valuable properties. It was declared that the Illinois Tunnel Company, owner of about 60 miles of subway used for traffic purposes, under the streets of the city, was insolvent.

Announcement was made on December 26 that Chicago financiers had bought out the Morgan Syndicate in the Chicago City Railway Company, and had consolidated this system with the Calumet and South Chicago Railway Company, the Southern Street Railway Company, and the Hammond, Whiting and East Chicago Railway Company. Stocks and bonds of these companies taken over amounted to \$50,735,000. The new company is known as the Chicago City and Connecting Railways. The syndicate which brought this about was headed by James B. Forgan, President of the First National Bank. In financial circles the consolidation was taken to indicate probably near consolidation of all the street railway lines in the city.

On January 20 about 70 workmen lost their lives and 40 more were injured in a fire which destroyed a temporary crib in Lake Michigan, a mile and a half from the shore at Seventy-first Street, used by a contractor in the construction of a new water-supply tunnel. The men were unable to escape from the crib after the fire had been discovered. The fire originated from an unknown cause, probably the carelessness of a workman, while many of the employees were asleep.

A dispute between the officials and the employees of the street railway lines which threatened to stop traffic on the lines by a strike was settled on August 12 by an agreement that the companies should pay conductors and motormen of five years' service a maximum scale of 30 cents an hour by a graduated series of advances, the last advance to become effective August 1, 1911. See STRIKES.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: An act was passed requiring the publishers of school books who desire to offer them for sale for use in the public schools of the State to file sample copies of the books in the office of the Superintendent of Public Instruction. Publishers of school books entering into any pool or combination to control prices or restrict competition in the adoption or sale of school books in the State, or who are found to have given

any money or used their influence to secure the adoption of their books, shall have their licenses revoked and all their books omitted from the list of licensed books. An important statute was enacted providing for the revision of laws relating to charities and corrections. Measures were enacted amending the laws relating to marriages, making a ceremonial marriage necessary in order to constitute a valid marriage under the laws of the State.

OFFICERS: Governor, Chas. S. Deneen; Lieutenant-Governor, John G. Oglesby; Secretary of State, James A. Rose; Treasurer, Andrew Russell; Auditor, J. S. McCullough; Attorney-General, W. H. Stead; Adjutant-General, ———; Superintendent of Insurance, Fred'k W. Potter; Superintendent of Public Instruction, Francis G. Blair—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Wm. M. Farmer, Dem.; Associate Justices, John P. Hand, Rep.; Frank K. Dunn, Rep.; George A. Cooke, Dem.; Alonzo K. Vickers, Rep.; Orrin N. Carter, Rep.; James H. Cartwright, Rep.; Clerk of the Court, J. McCan Davis, Rep.

The State Legislature of 1909 was composed of 38 Republicans and 13 Democrats in the Senate, and 89 Republicans and 64 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

ILLINOIS, UNIVERSITY OF. An institution of higher learning at Urbana, Ill., founded in 1867. There were in 1909, 4960 students with 497 members of the faculty. The university is supported by the Federal and State governments and fees. The total income for the year 1908-9 from these sources was \$1,414,984.21. Among the important changes in the faculty were the resignation of Professor T. P. Breckenridge to go to the Sheffield Scientific School, and Professor Raymond Weeks to go to Columbia University. There were added some fifteen new members to the faculty as professors, associate professors and assistant professors. Among them were Professor Henry Ward, head of the department of zoölogy, and Professor H. H. Stock, head of the new department of mining engineering. Of the additions twelve were to fill new positions. The president is E. J. James, Ph. D., LL. D.

IMBER, NAPHTHALI HERZ. A Yiddish poet, died October 8, 1909. He was born in Zloczow, Galatia, in 1854. He wrote from an early age and for the last twenty years of his life was active in voicing the beliefs of Zionism in the form of verse. He was the author of a hymn, which was adopted by the Zionists as the chief one of their creed. He wrote three volumes of verse in Hebrew under the title of *The Dawn*. Another of his books was *The Music of the Psalms*. During his last years he was director of a Yiddish magazine in New York City. He was, for a time, associated with Israel Zangwill, the novelist, and is said to have taught the latter the Yiddish language.

IMMIGRATION AND EMIGRATION.

During the fiscal year 1909, 944,235 aliens entered the United States, of whom 751,786 were of the immigrant class, that is, had left a permanent residence outside of the United States and were entering with the intention of residing permanently in this country, while 192,449 were of the non-immigrant class, that is, were either former

residents of the United States returning after a temporary absence or were permanent residents of foreign countries entering for temporary purposes only. During the same period 400,392 aliens departed, of whom 225,802 were of the emigrant class, that is, were leaving a permanent residence in the United States with the intention of residing permanently abroad, and 174,590 were of the non-emigrant class, that is, were departing with the intention of remaining abroad temporarily or were returning to their native land after a temporary stay in the United States. During the fiscal year 1908, aliens to the number of 924,695, of whom 782,870 were immigrants and 141,825 were non-immigrants, entered the United States, while 714,828 aliens, of whom 395,073 were emigrants and 319,755 were non-emigrants, left the United States. Therefore, while immigration for 1909 exceeded that for 1908 by 19,540, the emigration for 1908 exceeded that of 1909 by 314,436. There was, therefore, an actual increase of the alien population of the United States of 543,843, while in 1908 the actual increase was 209,867. This growth was confined to the last half of the fiscal year, the first six months having shown even a less increase than in some months of 1908. This would seem to indicate that the trend of immigration is upward and that it is rapidly assuming the large proportions from which there was a temporary departure in the fiscal year 1908 and the first half of the year 1909. Of the immigrant aliens who entered the country in 1909, 624,876 were between the ages of 14 and 44, while 88,893 were under 14 and 38,517 were 45 or over. As to illiteracy, 191,049 could neither read nor write and 2431 could read but could not write. These figures include no aliens under 14 years. Compared to the corresponding figures for 1908 this is an increase in illiterates from 26 per cent. of the total to 29 per cent. Arriving aliens brought \$17,331,828, an average of \$23.50 apiece. It is not certain, however, that all money possessed by these aliens was shown to the inspection officers. About one-third of those admitted were assisted by others to reach this country. Of the 225,802 aliens departing, 9804 were less than 14 years of age, 165,778 were from 14 to 44, and 20,512 either 45 years of age or over; 160,154 had resided in the United States less than 5 years, 26,967 from 5 to 10 years, 4027 from 10 to 15 years, 2666 from 15 to 20 years, and 2280 over 20 years. As to occupation, 174,800 of the immigrant aliens entering, and 118,936 of the emigrant aliens departing, were common unskilled laborers against 87,160 immigrant aliens entering and 21,919 emigrant aliens departing, who were members of the skilled trades. These figures seem to substantiate the general impression that the temporary element of the immigrant is constituted largely of the unskilled classes.

During 1909 as in the several preceding years, a very large proportion of the immigration has been from the countries of southern and eastern Europe. Italy, Austria-Hungary, Greece, Turkey in Europe, and the small principalities adjacent, and Russia supplied about 67 per cent. of the immigrants admitted; in 1908 these countries furnished 64 per cent. There were rejected at the United States ports during the year 10,411 aliens, or about 1.9 per cent. of the total number applying for admission. There was a marked increase in the number

rejected on moral grounds, due to the unremitting efforts to detect members of these especially undesirable classes and turn them back at the ports. During the year 2124 warrants of deportation were issued after granting hearings to the arrested aliens, compared with 2069 executed during the previous year. During the year 5266 aliens physically, mentally, or morally below the standard set by the law were returned to the foreign ports of embarkation, and 69 criminals, 261 immoral women, 30 procurers and one anarchist were arrested and deported. The Commissioner-General of Immigration recommends in his report that the law regarding the moral defects of immigrants be amended and strengthened in several important respects.

As a result of the acts prohibiting the immigration of Japanese and Korean laborers, which became effective in March, 1907, 212 of the 2644 Japanese applying for admission to continental United States were debarred. Of the number applying, 237 were not in possession of proper passports. During the same period 1539 Japanese applied for admission to Hawaii, of whom 1493 were admitted.

Under the Chinese exclusion laws, 836 Chinese were arrested during the year, which, with the 445 similar cases that remained pending at the close of the previous year, made a total of 1281 of such cases to be dealt with. Of these 39 died or escaped, 189 were discharged, 665 were deported and 338 cases remained pending at the close of the year. The Secretary of Commerce and Labor recommends the adoption of the recommendation made by his predecessor that the Chinese immigration service be consolidated with the general service. In 1908 the Department of Commerce and Labor authorized, on the recommendation of the Commissioner-General of Education, the adoption of a plan under which all American citizens of the Chinese race residing in the Hawaiian Islands could be furnished with a certificate of identity which affords them protection and the right of prompt ingress and egress. This plan proved so satisfactory that during the year 1909 the Commissioner-General recommended that a similar plan be adopted with respect to all Chinese hereafter admitted to the main land, either as domiciled merchants or as the wives or minor children of such class of merchants, or as American citizens by birth. This recommendation was approved and it is believed that the arrangement will be of benefit both to the Chinese and to the government.

A Division of Information having for its purpose the promotion of a "beneficial distribution of aliens admitted into the United States among the several States and Territories desiring immigration," was established on July 1, 1907. During the fiscal year 4168 persons were distributed through its means. Of this number 2565 were distributed among agricultural communities and received employment as farmers or farm laborers. Forty States and one Territory were represented in this field of the Bureau's activities, and in the distribution 45 nationalities were represented. Of those directed to employment, 1028 were Poles, 879 Germans, 428 Russians, 406 Swedes, 256 Italians, 221 Norwegians, 202 Danes, 127 Finns, 73 Irish, 59 English, 43 Swiss, and 8 Scotch. The records of the branch offices of New York, Baltimore, and Galveston showed that 26,477 appli-

cants sought to obtain information. The Bureau is in touch with State agencies and State boards of immigration and harmonious working arrangements are being established as the work progresses.

The table below, taken from the Report of the Commissioner General of Immigration for 1909, shows the immigration into the United States by countries in the fiscal years 1908-9.

violation of the Chinese exclusion laws. Measures governing the construction observed in criminal and penal matters are materially strengthened. No action had been taken on the Acts by Congress at the end of 1909.

IMMIGRATION COMMISSION, UNITED STATES. See IMMIGRATION and AGRICULTURE.

INCINERATORS. See GARBAGE.

IMMIGRATION BY COUNTRIES IN FISCAL YEARS 1908 AND 1909.

Countries	1908	1909
Austria-Hungary	168,509	170,191
Belgium	4,162	3,692
Bulgaria, Servia and Montenegro.....	10,827	1,054
Denmark	4,954	4,395
France, including Corsica	8,788	6,672
German Empire	32,309	25,540
Greece	21,489	14,111
Italy, inc. Sicily and Sardinia.....	128,503	183,218
Netherlands	5,946	4,698
Norway	12,412	13,627
Portugal, including Cape Verde and Azore Islands.....	7,307	4,956
Rumania	5,223	1,590
Russian Empire, and Finland.....	156,711	120,460
Spain, including Canary and Balearic Islands.....	3,899	2,616
Sweden	12,809	14,474
Switzerland	3,281	2,694
Turkey in Europe.....	11,290	9,015
England	47,031	32,809
Ireland	30,556	25,033
Scotland	13,506	12,400
Wales	2,287	1,584
Other Europe.....	97	46
Total Europe	691,901	654,875
China	1,397	1,943
Japan	15,803	3,111
India	1,040	203
Turkey in Asia.....	9,753	7,506
Other Asia	372	141
Total Asia	23,365	12,904
Africa	1,411	858
Australia, Tasmania, and Zealand.....	1,098	839
Pacific Islands, not specified.....	81	53
British North America	38,510	51,941
Central America	1,175	930
Mexico	6,067	16,251
South America	2,315	1,906
West Indies	11,888	11,180
Other countries	17	49
Grand total	782,870	751,786

The Immigration Commission appointed in 1907 had practically completed its study of immigration problems at home and abroad in the latter part of 1909 and at that time published several preliminary reports, the most important of which related to the white slave traffic. This report showed deplorable conditions, and, as a result of the investigations made by the Commission, prosecutions were carried on in various parts of the country, notably in Chicago and New York.

A new immigration act was introduced into the 61st Congress. It is entitled "An Act to Regulate the Immigration of Aliens to and the Residence of Aliens within the United States." This act is intended to regulate the entire matter of immigration, and is intended to prevent many of the irregularities which occur under existing laws. Provisions are included for the collections of data regarding incoming aliens. The measure includes a section consisting of the compilation of all the provisions of the immigration act and the Chinese exclusion laws regarding classes of aliens not to be admitted. Measures were taken also to prevent serious

INDIA, BRITISH. That part of the Hindustan Peninsula and of Burma which is directly or indirectly under British rule. Popularly the term is often used to include certain other states, as Nepal, which lie beyond its borders, but which are under the control or protection of the Governor-General. The capital is Calcutta.

AREA AND POPULATION. The total area and population (according to the last census, 1901) of India (that is, inclusive of Burma and the native states and agencies) are 1,773,168 square miles and 294,361,056, an increase of 7,046,385 over 1891. British India proper comprises 1,097,901 square miles, with 232,072,832 inhabitants, an increase of 10,695,875 over 1891. The area of the native states and agencies is 690,272 square miles, with 61,325,376 inhabitants, a decrease from 1891 of 4,178,420. The British-born inhabitants in 1901 numbered 96,653. Aryan languages were spoken by 221.16 millions and Dravidian by 56.51 millions. The languages spoken by the largest number of persons were: Hindi, spoken by 87.14 millions; Bengali, 44.62 millions; Telugu, 20.70; Marāthi,

18.24; Punjabi, 17.07; and Tamil, 16.53. According to religion, the population was divided as follows: Hindus, 207,050,557; Mohammedans, 62,458,077; Buddhists, 9,476,759; Animists, 8,584,148; Christians, 2,923,241 (1,202,169 Roman Catholics); others, 148,128. The principal cities, with population in 1901, are: Calcutta (with suburbs), 1,026,987; Bombay, 776,006, (1905, 977,822); Madras, 509,346; Hyderabad, 448,466; Lucknow, 264,049; Rangoon, 234,881; Benares, 209,331; Delhi, 208,575; Lahore, 202,964; Cawnpore, 197,170; Agra, 188,022; Amedabad, 185,889; Mandalay, 183,816; Allahabad, 172,032; Amritsar, 162,429; Jaipur, 160,167; Bangalore, 159,046; Howrah, 157,594; Poona, 153,320.

Coolie emigration in 1906-7 amounted to 21,003, and 8197 returned; in 1907-8, 15,117, and 6774 returned. Vital statistics are defective. In 1906 the reported birth rate per 1000 inhabitants was 37.36, and death rate 34.73; 1907, birth rate 37.66, and death rate 37.18.

EDUCATION. The census of 1901 showed that about one male in ten and one female in 144 could read and write. The government is giving increased attention not only to primary but to agricultural, commercial, and technical instruction. Recently education has made notable progress, and yet in British territory less than 26 per cent. of the boys and less than 4 per cent. of the girls of school age attend school.

On March 31, 1907, there were in India 162,757 educational institutions, with 5,400,293 scholars; on March 31, 1908, 165,612 institutions, with 5,711,485 scholars.

The universities of Calcutta, Madras, Bombay, Allahabad, and the Punjab are merely examining bodies, but have numerous affiliated colleges.

For the year ending March 31, 1907, the expenditure (exclusive of that in British Baluchistan) on education, including that from provincial revenues, local and municipal funds, fees, subscriptions, endowments, etc., was £3,734,207; for 1908 £4,018,764. The expenditures from provincial revenues for the two years were £1,236,617 and £1,327,179 respectively.

to 1906-7: Food grains and pulse, 186,369,792 acres (195,117,838), including: rice, 75,980,682 (73,541,128); jawar, or great millet, 21,963,751 (20,781,722); wheat, 18,424,191 (25,137,982); bajra, or spiked millet, 15,133,229 (15,033,742); barley, 7,629,550 (7,700,110); corn, 6,296,375; fibres, 18,598,640 acres (17,987,267), including cotton, 13,909,269 (13,771,214); jute, 3,942,675; oilseeds, 12,485,973 acres (13,965,315), including: sesamum, 4,287,728; rape and mustard, 3,297,455; linseed, 1,401,220;—sugar, 2,876,965 (2,623,874); condiments and spices, 1,270,845; tobacco, 974,458; opium, 538,042 (614,915); tea, 513,437; indigo, 405,905 (448,594); coffee, 99,511; fodder crops, 4,914,090 (4,547,733).

The estimated yield in 1907-8, including crops in certain of the Native States was: Cleaned rice, 387,300,200 cwt. (427,743,800 cwt. in 1906-7); wheat, 6,136,400 tons (8,491,700); cotton, 4,479,433 bales of 400 pounds (5,361,655); jute, 9,667,400 bales of 400 pounds (9,206,400); sugar, 2,054,700 tons (2,205,300); tea, 248,020,398 (241,403,510); sesamum, 271,600 tons (541,000); rape and mustard, 681,900 tons (1,053,100); linseed, 163,200 tons (425,200); indigo, 51,400 cwt. (65,700).

Government irrigation works, as well as private works, have greatly improved agricultural conditions. The total capital outlay on the government works up to March 31, 1908, was £34,542,941, which, aside from the resulting agricultural benefits, yielded a profit to the state of about 6½ per cent. The total area irrigated (by government and private canals, and by tanks, wells, etc.) was over 21,000,000 acres, or, counting both harvests, 40,062,880 acres (36,653,903 in 1906-7). The government major irrigation works had 10,459 miles of main canal, with 28,755 miles of distributaries; minor works, 2977 miles of main canal, with 1158 miles of distributaries. The Indian government is steadily developing the irrigation system. See IRRIGATION and STOCK RAISING.

MINERALS. The production of the principal minerals for which returns are available, in British India and the Native States, is reported as follows:

Minerals	1906-7 Value	1907-8 Quantity	1907-8 Value
Coal, tons	£2,609,726	12,769,635	£3,356,209
Gold, ounces	2,133,691	566,867*	2,156,635*
Manganese ore, tons.....	769,372		
Petroleum, gals.	610,015	176,646,320	702,009
Salt, tons	398,147	1,279,937	487,680
*Mica, cwts.	228,161	26,392	126,834
†Jadestone, cwts.	74,402	4,088	84,450
Rubies, sapphires, and spinels, carats.....	95,115	211,194	47,921~
*Approximate. †Exports.			

In 1907-8 there were published in India 753 newspapers, 1062 periodicals, 1524 books in English or other European languages, and 7095 books in Indian languages.

AGRICULTURE. Agriculture is by far the most important occupation of the people. In 1907-8, out of a surveyed area of 619,456,133 acres in British territory, 82,808,585 acres were reported as forest, 113,300,659 cultivable waste, 55,337,509 fallow and 210,883,660 sown with crops (214,026,319 in 1906-7). The total acreage cropped in 1907-8 was 237,635,293 acres, including 26,751,633 cropped more than once. The areas planted to the principal crops were as follows, the figures in parenthesis relating

Of the coal output in 1907-8, 11,559,911 tons were raised in Bengal; of the petroleum, 173,402,790 gallons in Burma; of the gold, 535,039 ounces in Mysore. Of the mica over three-fourths is produced in Bengal; about three-fourths of the salt is produced in Madras, Bombay, and Sind. Manganese ore is mined chiefly in the Central Provinces. Burma produces all of the jadestone, rubies, sapphires, and spinels reported.

MANUFACTURES. The more important manufactures include cotton and jute textiles, paper, indigo, and beer. In 1907-8 there were in operation 227 cotton mills (especially in Bombay and Ahmedabad), containing 5,763,710 spindles





THE MATHEWS-NORTHUP WORKS, BUFFALO, N.Y.
COPYRIGHT, 1903, BY DOUG, MEAD & COMPANY.

and 66,718 looms. The production, in 1907-8, was 638,295,115 pounds of yarn and 808,426,561 yards of woven goods; in 1908-9, 656,830,279 pounds and 824,489,164 yards. In 1907-8 there were 50 jute mills (chiefly in or near Calcutta), containing 562,274 spindles and 27,244 looms; 6 woolen mills, with 28,868 spindles and 820 looms; 9 paper mills (output in 1907 55,000,000 pounds); 23 breweries (production in 1907 5,610,121 gallons). There is a small manufacture of iron and steel and refined sugar.

COMMERCE. The following table shows India's sea-borne foreign trade, in thousands of pounds sterling, for three years ending March 31:

Sea-borne trade.	1907	1908	1909
Imports.			
Private merchandise.....	72,205	86,597	80,844
Government stores.....	5,956	4,429	5,008
Total merchandise.....	78,161	91,026	85,852
Private treasure	18,134	21,880	15,088
Government treasure	11,586	6,309	75
Total treasure	29,720	28,189	15,163
Total imports	107,881	119,215	101,015
Exports.			
Private merchandise:			
Domestic produce.....	115,388	115,652	99,883
Foreign produce (reexports)	2,323	2,511	2,114
Government stores	72	85	77
Total merchandise.....	117,783	118,248	102,074
Private treasure	3,809	3,631	1,771
Government treasure.....	3	2	242
Total treasure	3,812	3,633	4,213
Total exports	121,595	121,881	106,287

The statistics for the foreign land trade, which is largely with Afghanistan, Nepal, and the Shan States, are of doubtful accuracy. The following values, in thousands of pounds sterling, including merchandise and treasure, are given for three years ending March 31:

Land trade.	1907	1908	1909
Imports	5,151	5,718	5,526
Exports	4,275	4,643	4,640

In the sea-borne trade, the principal imports of private merchandise were valued as follows in 1908-9: Cotton goods and yarn, £25,343,000; metals, £8,663,000; sugar, £7,271,000; railway material, £4,947,000; machinery, etc., £4,411,000; mineral oil, £2,606,000; hardware, etc., £1,951,000; woolen goods, £1,941,000; provisions, £1,876,000; apparel, £1,611,000; silk goods, £1,521,000; liquors, £1,323,000; spices, £916,000; instruments, etc., £825,000; glass, £779,000. Imports of government stores included: Railway material, £3,013,000; metals, £380,000; machinery, etc., £256,000. The principal sea-borne domestic exports in 1908-9 were: Raw jute, £13,223,000; raw cotton, £13,170,000; rice, £10,593,000; jute manufactures, £10,491,000; hides and skins, £8,312,000; seeds, £7,785,000; cotton yarn and cloth, £7,691,000; tea, £6,929,000; opium, £6,233,000; lac, £1,863,000; raw wool, £1,389,000; wheat and flour, £1,241,000. The reexports included cotton yarn and cloth valued at £751,000 and raw wool, £186,000. In 1908-9 Great Britain sent 62.6 per cent.

of the imports of private merchandise and received 24 per cent. of the exports of Indian produce and manufacture; China (including Hongkong), 1.9 per cent. and 12 per cent. respectively; Germany, 4.1 and 10; the United States, 2.7 and 8.8; France, 1.5 and 6.4; Belgium, 4.2 and 4; Japan, 1.7 and 4.8; Straits Settlements, 2.8 and 3.5; Austria-Hungary, 3.2 and 3.1.

SHIPPING. In the year 1907-8 there entered the ports of British India, in the foreign trade, 4725 vessels, of 7,119,079 tons (British, 2397 vessels, of 4,375,823 tons), and cleared 4587 vessels, of 7,120,101 tons (British, 2388 vessels, of 5,419,334 tons). In 1908-9 the total number entered and cleared was 8001 vessels, of 12,910,823 tons. The chief ports are Calcutta and Bombay, which together have about three-fourths of the foreign trade; next in order are Rangoon, Karachi, Madras, and Chittagong.

COMMUNICATIONS. Nearly all the Indian railways are owned by the state and administered by a railway board, though many are worked by companies under lease. On December 31, 1907, there were open to traffic in all India 30,010 miles; on December 31, 1908, 30,576 miles. These figures include tramways working outside municipal limits, which are regarded as light railways. To the end of 1908 the total capital outlay was £274,011,400; for that year the gross receipts were £29,884,600, and the working expenses £18,001,667, the net returns on capital outlay being 4.33 per cent.; number of passengers carried, over 21,000,000; tons of freight, 62,000,000; employees, 525,583 (7334 Europeans, 9951 Eurasians, 508,288 natives). On March 31, 1909, there were open to traffic or in hand 30,983 miles, of which about 52 per cent. was standard gauge (6 ft. 6 in.) and about 42 per cent. metre gauge. There were under construction or sanctioned 2741 miles. Rivers and, especially in southern India, canals are important means of communication.

On March 31, 1908, the telegraph system, which is owned by the government, included 68,940 miles of line, 271,944 miles of wire, and 2544 offices; for the year there was a revenue of 2.01 per cent. on the capital cost of £6,857,000. Post-offices numbered 17,777; gross revenue and expenditure were £1,823,108 and £1,706,760 respectively.

FINANCE. The standard coin of India is the British pound sterling, worth \$4.8665, but the current coin is the rupee, valued at 32.44½ cents (15 rupees to the pound sterling). The gross revenue and the expenditure charged against revenue, in thousands of pounds sterling, were as follows, in the years ending March 31, 1907 and 1908; revised estimate for the fiscal year 1909:

	1907	1908	1909
Revenue	73,145	71,003	69,629
Expenditure	71,555	70,697	73,350

In addition to expenditure from revenue, there is a capital outlay (not charged to revenue), which in 1907-8 amounted to £10,567,000 on state railways and £846,000 on irrigation works. In 1907-8, of the gross revenue, £70,284,638 were raised in India and £718,637 in Great Britain; of the expenditure charged against revenue, £52,209,962 were spent in In-

dia and £18,487,267 in Great Britain. The figures given in the table above include all receipts and payments therefrom, except that the railway working expenses have been deducted from the railway revenue. By deducting departmental receipts, which are a set-off against departmental expenditures, and railway interest charges, interest charges and working expenses of irrigation works, refunds and assignments, cost of cultivating and manufacturing opium, etc., the net revenue and net expenditure appear as follows, in thousands of pounds sterling, for fiscal years (revised estimate for 1909):

	1907	1908	1909
Net revenue:			
Land.	19,067	17,983	18,946
Opium (export).....	3,744	3,572	4,616
Taxation, direct and indirect	20,458	20,778	20,818
Commercial undertakings ...	4,843	3,910	937
Tribute from Native States.	401	389	383
Other	442	374	-34
Total	48,955	47,006	45,666
Net expenditure:			
Collection of revenue.....	5,556	5,730	6,060
Debt services	944	855	979
Military services	20,170	19,248	19,631
Civil services	19,374	20,592	21,903
Other	1,322	275	914
Total	47,366	46,700	49,337

The principal revised estimates of gross revenue for 1908-9 were: Land revenue, £19,696,000; net railway traffic receipts, £9,985,000; excise, £6,412,000; opium, £5,884,000; customs, £4,852,000; stamps, £4,337,000; irrigation, £3,568,000; salt, £3,217,000; post-office, £1,834,000; forest, £1,701,000; income tax, £1,540,000; telegraphs, £952,000. The principal estimated items of expenditure charged against revenue were: Military services, £20,558,000; railways (interest and annuities), £11,107,000; police, £4,183,000; law and justice, £3,673,000; land revenue (collection charges, etc.), £3,667,000; superannuation, £3,060,000; post-office, £1,913,000; education, £1,695,000; famine relief and insurance, £1,676,000; opium, £1,248,000; telegraphs, £1,033,000.

On March 31, 1909, the consolidated debt stood at £256,604,000, of which the sum of £166,973,000 is known as the sterling debt (contracted in Great Britain) and £89,691,000 as the rupee debt (contracted in India). In addition, miscellaneous obligations amounted to about £20,699,000.

ARMY. For 1909-10 the establishment of the British regular forces serving in India was 76,009, embracing 9 regiments of cavalry, 11 horse artillery batteries, 42 field batteries, 3 howitzer batteries, 8 mountain batteries, 21 garrison artillery companies, 6 heavy batteries, 52 battalions of infantry, details of engineers, medical corps, etc. The native army, amounting to 154,500, consisted of 3 regiments of body guards, 39 regiments of cavalry and the Aden troop, the corps of guides, 12 mountain batteries, 1 frontier garrison company, 26 companies of sappers and miners, 117 infantry battalions, and 20 battalions of Gurkhas. In addition there were British volunteers, 35,400, Indian Army Reserves 22,000, Imperial Service Troops 21,000, local corps 5250, and military police 28,500, making a total aggregate strength of military forces available in India of 342,659.

GOVERNMENT. The government of British India is established by act of 1858. By act of 1876, the King of Great Britain and Ireland

is Emperor of India. Indian administration in England devolves upon the Secretary of State for India, assisted by a Council of not less than 10 members, who are appointed by him for a ten-year term. In 1909 the Secretary of State was the Right Hon. John Morley, Viscount Morley of Blackburn, his appointment dating from December, 1905. The expenditure of Indian revenues, both in India and elsewhere, is determined by the Secretary of State in Council, and all appropriations require a majority vote. In respect of the relations of the Indian government to foreign powers or to the Native States, in making peace and war, and in matters requiring secrecy, the Secretary of State may act independently of the Council. In India, the supreme executive authority is vested in the Governor-General in Council, sometimes styled the Government of India. The Governor-General, or Viceroy, who is appointed by the Crown, usually for a term of five years, in 1909 was the Right Hon. Gilbert John Elliot, Earl of Minto, his appointment dating from November, 1905. The Council consists of six members appointed by the Crown, and the Commander-in-Chief of the army. There are nine departments, each headed by a Secretary—Home, Foreign, Army, Military Support, Finance, Revenue and Agriculture, Public Works, Commerce and Industry, and Legislative. To the special care of one of the members of the Council each department is assigned, except the Foreign Department, which is under the immediate supervision of the Governor-General. By the addition of 16 other members, the Council is expanded into a legislative body, which has power, with certain restrictions, to make laws for all persons within British Indian territory, for all British subjects within the Native States, and for all native Indian subjects of the Emperor in any part of the world. In 1908 the Secretary of State for India announced important reforms introducing native representation in the councils. These were carried out in 1909. (See below, paragraphs on *History*.) For administrative purposes British India is divided into nine great provinces (besides some minor charges) as follows: Madras, Bombay (both under Governors); Bengal, Eastern Bengal and Assam, the Punjab, United Provinces of Agra and Oudh. Burma (these under Lieutenant-Governors); Central Provinces (under a Chief Commissioner); and the Northwest Frontier Province (under an Agent to the Governor-General). The minor charges are Ajmer-Merwara, the Andaman Islands, British Baluchistan, and Coorg (each under a Chief Commissioner). The Governors are appointed by the Crown, the Lieutenant-Governors by the Governor-General, with the approval of the Crown, and the Chief Commissioners by the Governor-General in Council. Each of the Governors and Lieutenant-Governors has a legislative council of his own. The importance and situation of the provinces, all of which are under the control of the government of India, determine the degree of their administrative independence. Usually each province is subdivided into districts under Commissioners, and these again into districts under executive officials called Magistrates, Collectors, or Deputy Commissioners. Of these latter districts, which form the units of administration, there are about 260 in British India. The municipalities, whose committees contain a majority of natives

and are mainly elected by the taxpayers, enjoy considerable latitude of action.

Through British Residents or Agents the government of India exercises varying degrees of control over the Native States, which are governed by their princes, ministers, or councils. In general the more important states are autonomous, but none is allowed to maintain political relations with another native state or with an external state, to make war or peace, or to maintain a military force beyond a specified limit, and in case of misgovernment the British administration may exercise any degree of control. Some, but not all, of the Native States pay an annual fixed tribute.

HISTORY

THE REFORM SCHEME. The reform proposals of Lord Morley and the Indian government which had been under discussion in the closing months of 1908 were the chief object of interest during the year 1909. The main features of the bill as it was finally passed by the British Parliament will be found in the article **GREAT BRITAIN**, paragraphs on *History*. In India there was naturally a sharp division between the Mohammedans and the Hindus on the question of a separate electorate for the Mohammedans and their representation in excess of their numerical proportion. The Mohammedans insisted on this and the Hindus as strongly opposed it. Lord Morley's original proposals were not satisfactory to the Moslems on these points. The Moslems demanded complete separation from the Hindus in all ranks of the administration and in consideration of the unswerving loyalty of the Mohammedan element urged that numerical strength alone should not be taken as the basis of representation. In January a deputation of the All-India Moslem League laid these requests before the government, urging the special claims of the Moslems to consideration and asking not only that they should have further representation than was based on numbers only, but that the communal basis should be recognized for their minority representation and that a Moslem as well as a Hindu should be selected for the Viceroy's Executive Council. Arguments on these points made up a large part of the discussion that the reform proposals occasioned during the year.

As to the attitude of the native population generally, observers declared that among the people at large there was little sign of interest in the reforms—that, in fact, only a few thousand out of the vast millions of Hindus were in the slightest degree interested. In the civil service there were signs of some dissatisfaction with the proposals as too radical and as likely to return undesirable members. It was said that the Lieutenant-Governors did not want any Councils. The presence of Indian members in the Provincial Councils was also condemned by many. At first the report was circulated that the government was disinclined to meet the demands of the Moslems as to a separate electorate, etc., and this occasioned much adverse criticism on the part of the Mohammedans as a violation of pledges. Later, however, when it became known what the government's intentions were, the Mohammedans were fairly well satisfied. On the other hand the concessions to the Moslems aroused bitter opposition from the Hindus.

On November 15 the details of the reform plans were published and the rules for putting them into effect were issued. The main points of this programme, on which the government of India and the Indian Office had been engaged for the past three years, were as follows: The Imperial Viceroy's Council was to have 68 members; the Provincial Council of Bengal, 51; of Madras, 48; of Bombay, 48; of the United Provinces, 49; of Eastern Bengal and Assam, 43; of the Punjab, 27; of Burma, 18. The Viceroy's Council was to have an official majority of 3 and each Provincial Council a non-official majority ranging from 14 in Bengal to 3 in Burma. Six Moslems would sit in the first Viceroy's Council. The membership of the Councils would now be 370 instead of 126, and the elected members would number 135 instead of 39. The oath of allegiance was required of members, and no one was to be eligible if the Imperial or Provincial government objected to him. The powers of the Councils were greatly enlarged and included the right to ask for information in regard to questions of public interest, to discuss such questions and to discuss the annual financial measures and move resolutions in regard to them. The Moslem sentiment was prevailingly favorable to the plan as announced. The Aga Khan, president of the All-India Moslem League, declared that the measure was a fulfillment of the government's pledges and went far ahead of the earlier plans and that he would urge all Moslems loyally to accept it. On the other hand the Hindu papers were violently against the reforms. They declared that the provincial non-official majorities were a sham and they condemned the Mohammedan separate electorate and special representation. Extremists went so far as to urge a boycott of the reform measure. On the whole conservative opinion inclined to a favorable attitude toward the reform scheme. Although some regarded it as too radical and as designed to bestow parliamentary institutions upon India before it was fit for them, the friends of the measure and the public generally saw in it only a step toward the political education of the natives. Lord Morley expressly disclaimed any idea of thrusting parliamentary institutions upon the natives or even of directly leading the way toward them.

NATIONAL UNREST. The disturbances which had been so marked a feature of the year 1908, including anarchists' plots, bomb-throwings, seditious speeches and publications, continued at intervals during 1909. A religious riot occurred near Calcutta in January in which Hindus and Moslems attacked each other and many were injured. Arrests for sedition under the British Indian Penal Code continued to be made on account of the seditious writings and speeches of newspaper editors and members of Nationalist organizations. On January 19 the government sentenced three journalists for sedition in the press inciting to murder. On February 10 the public prosecutor at Alipur was murdered. At the same time students were sentenced to imprisonment at Kolhapur for inciting to murder, and a bomb-throwing case occurred at Calcutta. Nevertheless conditions seemed in the beginning of the year somewhat quieter on the whole than in 1908. This was attributed in part to the reform proposals and in part to the strictness of the government in deporting agitators at the close of 1908.

The government showed on the whole a firmer policy, as illustrated in the appointment of Sir Norman Baker as Lieutenant-Governor. In Bombay the organization known as Samitis or National Volunteers was rapidly declining. The spirit of anarchism, however, was still rife and evidences were frequent of secret revolutionary organizations, with anarchist programmes framed on the model of Russian societies, which trained young men to deeds of violence, such as the murder of the Alipur prosecutor above mentioned. The high-caste Hindus were said to be in sympathy with this movement and there seemed to be no disposition on the part of the natives to aid in its suppression.

The revolutionary propaganda, in both India and Great Britain, resulted in criminal attempts and in some serious crimes. The most conspicuous of the latter was the murder of Lieutenant-Colonel Sir W. H. Curzon-Wyllie (q. v.) Political Aide-de-Camp to the Secretary of State for India. This murder, which occurred after a reception of the National Indian Association in London, was committed by an Indian student who had come under the influence of the seditious element. It was essentially a political murder and clearly traceable to the seditious agitation in England. For many months past the advocates of violence had been active among the young Indians sent to Great Britain for study. Their spirit was well illustrated by a paper published by Mr. Krishnavarma called the *Indian Sociologist*, which had openly advocated political assassination. Colonel Wyllie was the friend and benefactor of young Indian students. He had written a friendly letter to the assassin, inviting him to visit him. Prominent Indians expressed great horror at the crime. Measures were urged in the press and Parliament for a stricter supervision of the Indian students in England. In India a great many writers and speakers urged a programme of "passive resistance," apparently with no specific object and expressive merely of a general hatred of England. The anniversary of the boycott in India passed off without any serious disturbance. There were signs of a more severe policy on the part of the Imperial government as well as in the Provincial administrations, and this, in addition to the reform proposals, tended to prevent violence.

On the northwestern frontier a raid occurred which resulted in the killing of the chief raider and the capture of six of his men in January. On February 18 a serious riot occurred near Guntur in the Presidency of Madras, resulting in the stoning of the police by a mob of five thousand people. Two rioters were killed and many were injured. An attempted bomb outrage occurred at Calcutta in March, aimed at the chief magistrate of the Presidency. In April the British officer in command of the North Waziristan militia was wounded by a Sepoy. In the same month thirty or forty arrests were made by the Gwalior police for sedition and twelve native soldiers were killed by outlaws. A small body of native cavalry was attacked in Baluchistan in May and three men were killed and one wounded. In the same month twenty-two out of the thirty-six Alipur conspirators were acquitted. Of the remainder two were sentenced to death, seven to transportation for life and five to penal servitude for varying terms. In the same month nine Indians were deported

from England by the government. This caused a protest in Parliament and a demand for their release, which was refused. There was some trouble early in June on the Afghan border in the Zhob valley. In July an attempt to revise the boycott led to the enforcement of repressive measures in Bengal. In August, of the thirty-nine persons arrested in Gwalior in April, four were acquitted, two pardoned and the rest sentenced to varying terms of imprisonment. At the close of September a summary of crimes committed during the previous year showed that there were 329 murders during that period and that only eighty of the criminals had been brought to justice. An unsuccessful attempt was made on the life of the Viceroy, Lord Minto, during his tour of the country in November, but in general he was received, outwardly at least, with enthusiasm.

LORD KITCHENER'S ADMINISTRATION. Lord Kitchener's work of military reorganization was practically completed in 1909. In the spring he announced the results, saying that at present nine infantry divisions and eight cavalry brigades could be mobilized with unprecedented rapidity. The work of equipping the artillery with quick-firing guns and the troops with new rifles was, he said, now practically complete. He also declared that guns, rifles and ammunition could now be produced in India in sufficient quantities to meet the demands. In general the effect of his changes had been to increase the pay and lower the cost of the army. On the eve of his departure for his eastern trip (September 12), a banquet was tendered him and high tributes were paid to his military administration.

Lord Minto declared that as a result of his plan of decentralization he had left the army administration on a sound footing, with better paid and better disciplined troops. The press commented on the tendency of those who had criticised his plans at the beginning to become sincere admirers of his work as it progressed. He was praised, not only for his military skill, but for his statesmanship, which had promoted friendly relations with the neighboring states. As to the efficiency of the army, it was said that it could now perform any task with double the numbers and with greater rapidity than ever before. A circular letter issued by Lord Kitchener drew attention to the improved health of the troops in the last few years. The death rate of the British troops in India, which between 1894 and 1903 was 17.13, was in 1908 9 per thousand, and during the same interval the number of those who were constantly sick in hospitals fell from 5384 to 3139. During the same period the death rate in the Indian army fell from 11.33 to 7.41 per thousand and the numbers of the sick in hospitals declined from 3721 to 2749.

OTHER EVENTS. Early in the year the statistics of the results of the plague during 1908 were published. These showed that 148,700 deaths from the plague had occurred in that year, as compared with 1,316,000 in 1907 and 356,700 in 1906. The Congress of Tropical Diseases was opened at Bombay on February 22, comprising, besides the leading medical men of India, representatives from Japan, the Philippines and England. The Decentralization Committee issued its report on February 27. Among other points it endorsed the Morley scheme in regard to the creation of Executive Councils in the Provinces and the increase of the Bombay

and Madras Executive Councils. It favored also a gradual and cautious provision for local village councils. A Hindu native was appointed a member of the Viceroy's Council in March. He was a barrister in large practice named Satyendra Sinha. The budget for 1909-10 was presented on March 21. The estimated revenue was £73,750,900, and the estimated expenditure £73,520,000, showing a decrease of net revenue from 1908-9 of £3,810,300 and an increase of expenditure of £481,700. The deficit was explained by the famine, the high prices and the bad state of trade. The corner-stone of the new (Canning) college at Lucknow was laid in April. Its chief benefactor was the Maharajah of Bairam. It was expected to be the best equipped institution of the kind in the Province. A large native meeting was held at Bombay on September 14 to protest against the cruel treatment of the Indians in South Africa. It resolved to petition the Imperial government against this practice and against the recruiting of labor. It described the hardships entailed by the practice of deportation. There was also a meeting of leading Indians at Madras to protest against the continued ill-treatment of the Indians in South Africa. The Malaria Conference was held at Simla in the middle of October. It was attended by forty delegates from all parts of India. It drew attention to the fact that in the last ten years the deaths from this cause number four and one-half millions and that during the last year alone five and one-half million deaths had occurred.

INDIA, PORTUGUESE. See PORTUGUESE INDIA.

INDIANA. One of the North Central Division of the United States. It has a total area of 36,584 square miles. The population in 1909, according to a Federal estimate made in that year, was 2,808,115.

MINERAL PRODUCTION. Indiana ranks ninth among the States producing petroleum. In 1907 its rank was eighth, in 1908 it was surpassed by Louisiana. There were produced in 1908 3,283,629 barrels, valued at \$3,203,883, as compared with a production in 1907 of 5,128,037 barrels, valued at \$4,536,930. There were in 1908 402 wells in the State, of which 82 were dry and 320 productive. The decrease in the production of the Indiana oil fields in the last few years has been the result of the opening up of the Illinois fields. These attracted many Indiana operators. The coal production of the State has shown a steady increase in recent years, although the production of 1908 was about 12 per cent. less than 1907. This was the result largely of the financial depression. In 1908 there were produced in the State 12,314,890 short tons, with a spot value of \$13,084,297. In 1907 the production was 13,985,713 short tons, valued at \$15,114,300. In April and May there was a suspension of operations pending an adjustment of the wage scale. After the suspension mining operations were resumed under a new agreement, covering a period of two years or until April 1, 1910. The total number of men employed in the mines of the State in 1908 was 18,380, as compared with 21,022 in 1907. There were killed in the coal mines of the State in 1908, 45 men, while 830 were injured. A considerable amount of coke is manufactured. The clay products of the State in 1908 were valued at \$6,740,167, as compared with \$6,858,024 in 1907. In the production of

Portland cement the State ranks first, being surpassed only by Pennsylvania. There were produced in 1908, 6,478,165 barrels, valued at \$5,386,563, as compared with 3,782,841 barrels in 1907 with a value of \$4,757,860. The State has grown rapidly in the production of this commodity. The State ranks first in the production of lime. There were produced in 1908, 95,988 short tons, as compared with 107,904 short tons in 1907. The stone products are also of great value. In 1908 they were valued at \$3,646,603, as compared with \$3,639,551 in 1907. Other mineral products of the State are coal products, including coal tar, illuminating gas, etc., pyrite and oil stones. The total value of the mineral products of the State for 1908 was \$37,295,494, as compared with the value of the product in 1907 of \$39,141,217.

The chief influences that have affected the coal-mining industry of the State has been the increased use of oil and gas for fuel and also the use of coke or of Eastern coals, which followed the agitation in regard to the suppression of smoke. As a result there was a decreased production in 1909.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the chief farm crops in 1909, according to the figures of the United States Department of Agriculture, were as follows: Corn, 196,520,000 bushels, valued at \$98,260,000, from 4,913,000 acres; winter wheat, 33,124,000 bushels, valued at \$36,436,000, from 2,165,000 acres; oats, 55,510,000 bushels, valued at \$21,649,000, from 1,820,000 acres; barley, 212,000 bushels, valued at \$134,000, from 9000 acres; rye, 940,000 bushels, valued at \$696,000, from 57,000 acres; buckwheat, 104,000 bushels, valued at \$82,000, from 6000 acres; potatoes, 9,025,000 bushels, valued at \$4,693,000, from 95,000 acres; hay, 3,080,000 tons, valued at \$32,340,000, from 2,200,000 acres; tobacco, 19,000,000 pounds, valued at \$2,090,000, from 20,000 acres. Winter wheat has varied greatly in production since 1900, the banner year being 1906, with a production of 48,080,925 bushels. The production of 1909 showed a marked decrease from that of 1908, which was 45,169,000 bushels, while the acreage decreased from 2,721,000 acres to 2,165,000 acres in 1909. The corn crop of 1909 was a considerable increase over that of 1908, which was 137,835,000 bushels, and the acreage increased from 4,579,000 to 4,913,000 in 1909. The hay crop of 1909 showed a slight decrease over that of 1908, which was 3,750,000 tons. The acreage decreased from 2,500,000 acres in 1908 to 2,200,000 acres in 1909. The production of tobacco showed a remarkable increase in 1909, being more than double that of 1908, which was 8,715,000 pounds. The acreage increased from 12,450 to 20,000. The number of farm animals in the State on January 1, 1910, were as follows: Horses, 847,000; mules, 94,000; dairy cows, 687,000; other cattle, 1,020,000; sheep, 1,227,000; swine, 2,578,000. The estimated value of the wool clipped in 1909 was 6,220,800 pounds.

FISHERIES. There were taken in the fisheries of the State in the year ending December 31, 1908, 15,507,500 pounds, valued at \$223,150. The most important were mussel shells, of which 14,431,000 pounds were taken, valued at \$80,860. Next in point of value were pearls and slugs, which had a value of \$73,760. The other fish were buffalo, German carp, drum or sheepshead, lake herring, yellow perch, lake trout and

whitefish. There were 873 fishermen engaged in the fisheries of the State and 113 wage-earning fishermen were employed. Two vessels were engaged in the fisheries, valued at \$6700. The cash capital invested was \$4890.

EDUCATION. The total school attendance in the State in the school year 1908-9 was 530,341, and the average daily attendance was 422,434. The attendance was divided as follows: White males, 261,988; colored males, 4884; white females, 258,161; colored females, 5538. The attendance in the townships of the State was 291,979, in the towns, 62,407, and in the cities, 175,955. The average salary of teachers per year was \$471.04 for male teachers and \$454.04 for female teachers. The expenditures for education were \$14,504,543.

FINANCE. According to the report of the State Treasurer there was a balance in the treasury at the end of the fiscal year 1908 of \$609,085. The revenues for the fiscal year 1909 were \$4,937,817, and the expenditures were \$5,016,626, leaving a balance at the end of the fiscal year 1909 of \$530,276. The chief sources of revenue are from taxation. The chief disbursements are for State institutions, officials and employees. The bonded debt at the end of the fiscal year 1909 was \$1,510,163.

CHARITIES AND CORRECTIONS. A number of excellent laws affecting social work in the State were enacted by the legislature, which adjourned March 8, 1909. Among the more important are the maternity hospital laws, the improved housing act, provisions for county jail supervision, public playgrounds, and medical inspection of public schools. The general appropriation bill also carried provisions for the construction of a hospital for the treatment of tuberculosis on a site at Rockville, purchased in 1908, and for the Southeastern Hospital for the Insane under construction at Madison. Appropriations were also made for a new school for the deaf at Indianapolis, for new cottages at the Village for Epileptics, and for an additional cottage for feeble minded women at the School for Feeble Minded Children. The State institutions include the Central Hospital for the Insane, the Northern Hospital for the Insane, the Southern Hospital for the Insane, the Southeastern Hospital for the Insane, Soldiers' Home, Soldiers and Sailors' Orphans' Home, School for Feeble Minded Youth, Village for Epileptics, School for the Deaf, School for the Blind, and several reformatories.

POLITICS AND GOVERNMENT. The most noteworthy event in the political history of Indiana was that connected with local option on the saloon question by means of election. There had existed (and still exists) a law called the Moore remonstrance law, by which a majority of voters in any ward or township may remonstrate against the issuance of licenses, and the county commissioners are bound to heed it and refuse all licenses, the refusal holding good for two years. The burden of proof that a majority of voters has not signed the remonstrance is on the applicant for any license. In 1906, when the two party conventions for the election of members for the legislature and State offices were held, neither platform contained any pronouncement on the liquor or saloon question; the status under the Moore remonstrance law and under the Nicholson law (which contains severe restrictions on the licensing and conduct of saloons) gave general

satisfaction, apparently. But in April of 1908 the Republicans held their State convention, and a county option plank was adopted calling for an election, on petition, in any county, as to the licensing of saloons, the whole county to vote as a unit and make the decision for that county. The Democratic convention, held a week earlier, had pronounced for a similar election, but making the ward or township the unit. Both parties pledged that the new law should in no wise interfere either with the Nicholson law or the Moore remonstrance law. The significance as to the latter was that if any unit voted "wet," the Moore remonstrance law was still valid to oppose saloon licensing if a majority of the people in the township or ward should sign it. In October of 1908, twenty-five days before the election of that year should be held, Governor Hanly called in special session the legislature, which had been elected in 1906 without reference to the saloon or liquor question, and by active personal work with the legislators obtained the passage of a county option law; although the question was then pending in the campaign. The election, which came on November 3, resulted in the Democrats sweeping the State (although Taft received a majority), electing the Governor, eleven of the thirteen Congressmen, and the State Legislature, thus electing also a Democratic United States Senator. Under this condition it was felt that ward and township option had been approved by the people, and a bill was introduced to repeal the county option law. But it was defeated by a very narrow majority. Since then the Supreme Court of the State has declared the county option law to be constitutional. So county option is the law in Indiana until, or unless, it shall be repealed by some legislature, as may be done at any session (the sessions are biennial). Meanwhile an organization of the State hotel keepers had espoused the cause of its repeal on the ground of unfairness, holding that rural sentiment in a county should not compel them to give up the sale of liquor at their hotels in the towns. Whatever happens to it there is no disposition on any side to interfere with the Nicholson (licensing) law, or the Moore remonstrance law, by which latter a majority of voters may at any time declare a township or ward "dry" for two years. The Anti-Saloon League, under whose active guidance most of the county option election laws have been held, has now declared for State-wide Prohibition and will seek an amendment to the State constitution to that end. The purpose of the League in furthering county option was unconcealed as being the best way to lead up to State Prohibition.

During the year a remarkable series of elections was carried on, as a result of which 64 of the counties of the State had voted for no-license by the first of December. On January 26 elections were held in four counties, Decatur, Putnam, Tipton and Hamilton, and in all these the no-license vote had a substantial majority. On the 29th of the same month the no-license party won the greatest victory they had yet gained. This was in Randolph county, where there was a majority of 2470 for no-license in a total of 5152. On February 5, Huntington, Park and Switzerland counties voted on the question of license, and in each the temperance party won a substantial victory. After a hard fought struggle the no-license party found its

first defeat of the year in Wayne county, on February 5, where the vote for license exceeded that for no-license by about 800. On February 24, however, Morgan county voted on the local option law, and the result of the ballot showed a dry victory by a majority of 1055. The great preponderance of temperance sentiment in the rural counties was again shown on February 25, when the three counties of Fayette, Fountain and Hendricks, none of them having a city of any considerable size, voted no-license by majorities ranging from 800 to 2000. On March 23, local option was carried in Benton, Greene and Montgomery counties by majorities ranging from 900 to 2700. On the 25th of the same month Elkhart and Orange counties voted for no-license by majorities of 1300 and 667. On March 30, Bartholomew, Jennings and Vermilion counties voted no-license, and on the 31st Henry county voted for no-license by a majority of 2816. One of the hardest fought contests was held on April 6, in Cass and Blackford counties, and both were carried for license by small majorities, Blackford by about 200, and Cass by less than 50. White and Jackson counties, on April 26, both joined the dry column as a result of the election. Jackson contains the important city of Seymour. Four elections were held on April 30, and as a result three counties, Jefferson, Martin and Washington, voted for no-license, and Tippecanoe voted for license. On May 26 the no-license party won the elections in Crawford, Owen and Madison counties, and on May 27 Laporte county was carried for license by a majority of over 4000. Floyd county was carried for license while Harrison county was carried for no-license. On July 3 Porter and Valparaiso counties voted for license, and on June 9 Clark county also voted for license. On August 24 Union county was added to the dry column, and on September 30 Knox county voted for license. This county contains the city of Vincennes, which voted for license by a majority of 1709. On November 27 De Kalb county declared against the licensed saloons, making a total of 64 counties in the State under no-license, with six counties dry by remonstrance. By December 16, 66 out of 92 counties had voted "dry," 13 had voted "wet," and 13 had not voted. On December 16 the Supreme Court rendered a decision declaring the county optional law constitutional, two of the five judges joining in a dissenting opinion. The decision had been expected daily for several weeks, and until it was handed down, speculation was rife regarding it.

On January 19, B. F. Shively was elected Senator by the legislature to succeed Senator Hemenway. Senator Shively, a Democrat, was elected as a result of the Democratic victory in the election of November, 1908. His opponents for the Senate were John W. Kern, the Democratic nominee for Vice-President, and L. Ert Slack. It was charged that Shively's election was the result of a combination between the temperance and brewery elements. The Republican minority in the legislature unanimously nominated Senator Hemenway to succeed himself in the Senate. On August 5, the first election of candidates under the new direct primary law of the State was held in Indianapolis. But before the polls opened the Circuit Court issued an injunction against the destruction of the ballots, and this order to

preserve them, so that if frauds were committed they might be investigated, is said to have stopped whatever frauds had been contemplated. While the voting was in progress the State chairmen of both parties, and many of the leading business men, denounced the primary law and steps were taken to have it repealed at the next session of the legislature. As a result of the election, Samuel Lewis Shank defeated Newton W. Harding for the Republican mayoralty nomination by a large majority. Charles A. Gauss was nominated by the Democrats. In the elections held on November 2 the Republicans carried Indianapolis, after a hard fought battle, in which the brewery and saloon elements supported the Democratic ticket. Shank was elected mayor of the city. Results throughout the State showed that the Republicans and Democrats received about an even division in the cities of secondary importance. The election in most of these cities was on strict party lines, although the wet and dry issue appeared in many towns. Among the cities that voted either to restore the saloons or continue them in operation were Muncie, Lafayette, Hartford City, Evansville, Valparaiso, Michigant City and Terre Haute. Howard and Putnam counties (Kokomo and Greencastle, county seats) voted for the abolition of the liquor traffic. The South Bend issue was not on the abolition of the saloons, but on their better regulation. The Democrats elected Charles F. Goetz mayor upon a platform of good government, which had for its chief aim the overthrow of the "wide open town" régime which has existed for several years.

On March 16 the Supreme Court of the State held the State Anti-Trust law constitutional. The case was that of a plumber who brought suit against three firms dealing in plumbers' supplies, alleging that they had formed a combination in restraint of trade, and had adopted a list of prices at which they sold supplies to non-members which were from 30 to 75 per cent. higher than that charged members of the combine. The court decided that this was true and ordered the illegal agreement dissolved. The Supreme Court declared that the plumbers and dealers in plumbers' supplies were within the law, so often applied to railroads, that makes their charges for property and services subject to regulation and control by law, and holds that the anti-trust law is valid. The business done by all the fire insurance companies throughout the State was brought to a standstill on May 10, as a result of the suit filed by the Attorney-General to prevent combinations for maintaining the rates under the so-called Dean schedule.

OTHER EVENTS. On April 30 the State was swept by the severest electrical and rain storm that had visited it for years. The storm was worst in the northern tier of counties, although it extended over a large part of the State from the Ohio River to Lake Michigan. Much damage was done to property, and several persons were injured. The wall of the State prison was blown down and the Governor ordered out militia to guard prisoners. On July 27 the hundredth anniversary of the establishment of the Christian church was celebrated. On September 16 the cornerstone of the State's first tuberculosis hospital was laid. October 12 United States District Judge A. B. Anderson ruled, in a vigorous oral opinion, against the

right claimed by the government to take the owners of the Indianapolis *News* to Washington, there to be tried on an indictment for libel found by the grand jury of the District of Columbia. See UNITED STATES, under *Administration*.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: A measure was enacted establishing a maximum passenger rate of 2 cents a mile on railroads. Laws relating to tenement houses were amended, and amendments were made to the laws governing elections. Provisions were made for public playgrounds in the cities, and the statute relating to sanitation and methods in the shops of food producers was amended.

OFFICERS: Governor, Thomas R. Marshall; Lieutenant-Governor, Frank J. Hall; Secretary of State, Fred A. Sims; Treasurer, Oscar Hadley; Auditor, John C. Billheimer; Attorney-General, James Bingham; Adjutant-General, Oran Perry; Superintendent of Education, R. J. Aleay—all Republicans except Marshall, Aleay and Hall, Democrats.

JUDICIARY. Supreme Court: Chief Justice, John V. Hadley; Justices, Quincy A. Myers, James H. Jordan, Leander J. Monks, Oscar H. Montgomery; Clerk of the Court, Edward V. Fitzpatrick—all Republicans.

The State Legislature of 1909 was composed of 27 Republicans and 23 Democrats in the Senate, and 40 Republicans and 60 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

INDIANA UNIVERSITY. An institution of higher learning at Bloomington, Ind., founded in 1820. There were in 1908-9 2470 students, with 83 members of the faculty. The number of volumes in the library is 70,800. The productive funds of the University amount to about \$890,000, with a total income of \$236,657. The president is William L. Bryan, Ph. D., LL. D.

INDIAN EDUCATION. See INDIANS.

INDIANS. The session of the Sixtieth Congress led to the enactment of several important laws relating to the Indians. In that part of Oklahoma occupied by the Five Civilized Tribes the lands of all intermarried whites, all freedmen, and all mixed bloods with less than half Indian blood have been set absolutely free, while the homesteads of full-bloods and of mixed bloods with as much as half Indian blood are to remain inalienable till April 26, 1931. Another act authorized the cutting of timber and manufacture of lumber on the Menominee Reservation, Wisconsin, while still another eliminated the difficulties in the clearing of titles to Indian lands.

In conjunction with the Smithsonian Institution, the Indian Office authorized Dr. Ales Hrdlicka to investigate the prevalence of tuberculosis among the Indians of the United States. Among 403 Menominee examined, only 78.5 per cent. were found free of all suspicion of tuberculosis; of 428 Ogalalla Sioux, 75.5 per cent.; of 62 Quinalt, 81 per cent.; of 331 Hupa, 77.6 per cent.; and of 357 Moohave, 88.2 per cent. These figures corroborate the belief that tuberculosis is the greatest single menace to the Indian race. To combat the disease, the Commissioner established sanitarium camps, enabling the inmates to live in the open air under

medical surveillance. As it was demonstrated that the wind instruments used by the boys' bands in the schools have been conducive to the dissemination of the tubercle bacilli, their employment has been temporarily discontinued. The employment bureau organized several years ago continues its good work in encouraging Indians to work among white people under conditions similar to those confronting white workmen. In the Southwest, considerable employment had thus been found for Indians in connection with various projects of the Southern Pacific Railway, which conceded to its Indian employees free transportation. The rigorous interpretation of the rate law by the Interstate Commerce Commission and the financial crisis combined to diminish the success of the employment bureau's efforts; nevertheless the net earnings of a large number of Pima and Papago navvies amounted to \$8,382.25. The Apache employed on the Roosevelt reclamation project earned as much as \$34,000. The sheep industry has kept the Navaho busy at home and yielded profitable occupation to the Pueblo Indians. In southern California, the superintendent of a great reclamation enterprise found his 500 Indian laborers extremely satisfactory. He found them thoroughly acclimated to the desert and working at ease under a temperature of 120 degrees; indeed, their services seem to be indispensable to the successful execution of the undertaking. At Fort Belknap, the Indians are engaged in raising crops which will prepare the ground for sugar beets next year. An act of Congress has given them permission to lease their lands for the cultivation of sugar beets, and the experiment thus begun will presumably be followed by corresponding enterprises on other reservations. Some progress has also been made in making the Sioux self-supporting farmers, though they are loth to tend their crops while they are maturing. The work of suppressing the liquor traffic is being pursued with considerable success. A special officer, William E. Johnson, seized and destroyed large quantities of ardent spirits and wine imported for Indian consumption. Numerous arrests were made, and a decision of the Supreme Court established the illegality of introducing liquor upon Indian allotments.

In the matter of education, it is encouraging to note that 67 district schools in the United States are known to have admitted Indian children on equal terms with white children and without cost to the Federal government. The total number of Indian children enrolled in all schools, whether conducted by missions, the government or otherwise, was 25,777 with an average attendance of 21,807. In pursuance of the Commissioner's policy, the number of day schools has been increased from 138 to 167. All the energies of the Commissioner, as well as of the Superintendent of Indian Schools, are bent on equipping the pupils for grappling with the specific problems that are likely to confront them on leaving school. Thus, in the Mount Pleasant school, pupils are drilled in the cultivation of sugar beets, because of the importance of this industry in the State of Michigan, while in California stress is laid on the teaching of fruit growing. Every attempt is likewise made to foster and direct the natural endowments of Indian children in the line of art industry by developing their sense for color schemes and designing.

INDO-CHINA, FRENCH. See **FRENCH INDO-CHINA.**

INDUCTION MOTOR. See **DYNAMO-ELECTRIC MACHINERY.**

INDUSTRIAL ARBITRATION AND CONCILIATION. See **ARBITRATION AND CONCILIATION, INDUSTRIAL.**

INITIATIVE AND REFERENDUM. See **ELECTORAL REFORM.**

INJUNCTIONS. The chief injunction proceedings of the year were those growing out of the injunction secured in December, 1907, and March, 1908, by the Bucks Stove and Range Company from the Supreme Court of the District of Columbia against the officers and members of the American Federation of Labor. Late in December, 1908, President Gompers, Vice-President Mitchell and Secretary Morrison of the Federation had been convicted by that court of violating the injunction, Justice Wright rendering the decision, and had been sentenced to imprisonment for one year, nine months and six months respectively. In that case, at which Alton B. Parker appeared for the defendants, the latter had taken the position that the original injunction was wrongly granted, being an infringement of the right of free speech and free press, and therefore in excess of the power of the court issuing it; that therefore a violation of the injunction could not be adjudged a contempt of court as shown by the citation of numerous judicial opinions; but that they recognized that disobeying the order was done at their peril, though they were willing to sacrifice personal freedom in order to secure a determination of the rights of speech and press to be enjoyed by union labor. Justice Wright having upheld the injunction and severely sentenced its violators, there were two issues before the labor leaders; first an appeal to determine the legality of the original injunction, and secondly an appeal from the sentences in the contempt proceedings. In order to take these matters to higher courts, the executive council of the Federation on January 18, 1909, issued an appeal for funds to organized labor, its friends and sympathizers.

On March 11 the Court of Appeals of the District of Columbia, to which these matters had been taken, by a majority of two to one rendered a decision sustaining the rightfulness of the original injunction, but greatly reducing its extent. The validity of the injunction involved the definition of a boycott (q. v.), for it was to restrain an alleged boycott that the order was originally issued. Justice Robb, who rendered the majority opinion, reviewed at length the facts in the case and cited numerous opinions to establish the nature of a boycott as "a combination to harm a person by coercing others to harm him." The combination in this case was declared to constitute a boycott so defined and therefore an illegal restraint of trade. The opinion pointed out that while the courts have refused to enjoin the publication of a libel, they have freely enjoined both written and oral utterances constituting the means of carrying out an unlawful combination. The court therefore upheld the lawfulness of the injunction in so far as it prohibited the inclusion of the Bucks Company in the "Unfair" or "We don't patronize" lists of the *Federationist*, and any other official utterance made "in furtherance of the boycott"; but the decision declared any additional interference with the business or publica-

tions of the Federation to be beyond the court's power.

Justice Van Orsdel, while concurring in the above conclusion, did so only after a somewhat different line of reasoning. He strongly upheld the direct boycott, that is, the privilege of one man or any number of men individually or collectively to agree not to patronize a certain person or corporation; but he condemned the secondary boycott, that is, a conspiracy to injure by threats and coercion the property rights of another. He held even that the publication of an unfair list was clearly within the rights of the appellants, "but as soon as by threats or coercion they attempted to prevent others from patronizing a person whose name appears on the list, it then becomes an unlawful conspiracy." He therefore held the original very broad and all-inclusive injunction to be a violation of constitutional rights, but concurred in a modified injunction restraining acts done in furtherance of the boycott.

Chief Justice Shephard in a dissenting opinion held that, although a conspiracy had been properly defined by his colleagues, yet a group of employees had an undoubted right to present their cause to the public in papers and circulars, so long as there was no attempt at coercion; that any number of persons may refuse patronage, and that therefore only to the limited extent that members of the Federation had conspired to threaten or coerce others to do so, could he concur in the modified decree; and that the inclusion of the Bucks Company in the "Unfair" list cannot be restrained, as such publication is protected by the constitutional guarantee of freedom of the press; any damages so inflicted, he held, must be recovered by action for damages and by criminal prosecution. On this latter point Justice Van Orsdel had stated that, while there was nothing complained of in this case for which there was provided a specific legal remedy, yet sufficient excuse for equity jurisdiction existed in the inadequacy of such remedies to prevent irreparable injury and a multiplicity of suits. The officers of the Federation protested that there had been no conspiracy to coerce, and that therefore the decision had been made on an error of fact. On the other hand, the Bucks Stove and Range Company filed suit in the United States Supreme Court to have the modifications of the original injunction removed on the ground that the modified injunction was too limited to accomplish the purpose sought.

The appeal from the decision of the Supreme Court of the District of Columbia rendered by Justice Wright in the contempt proceedings, taken before the same court, was decided on November 2. The court was again divided. Justices Van Orsdel and Robb, holding the proceedings to be criminal, refused to take cognizance of any points except the guilt or innocence of the labor leaders with reference to disobedience to the original injunction. On this ground the judgment was affirmed. While regretting the severity of the imprisonment sentences, they held that the affirmation of that judgment was necessary to the maintenance of the proper position of the courts as organs of government. Justice Van Orsdel said: "If a citizen, though he may honestly believe that his rights have been invaded, may elect when, and to what extent, he will obey the mandates of the court and the requirements of the law as interpreted by the court, instead of pursuing the orderly course of

appeal, not only the courts, but government itself, would become powerless, and society would soon be reduced to a state of anarchy."

Chief Justice Shephard again dissented on the ground that the original injunction was in excess of the rightful power of the court and therefore "null and void, because opposed to the constitutional prohibition of any abridgment of the freedom of speech and of the press."

On November 29 application was made by Mr. Parker, on behalf of his clients, Messrs. Gompers, Mitchell, and Morrison, for a writ of certiorari, bringing the contempt proceedings before that court for review. Such a writ was granted December 6. This suit and that of the Bucks Stove and Range Company were still pending at the end of the year.

In his annual message to Congress, President Taft, who has been called "the father of injunction" on account of decisions rendered by him when a circuit judge, included a recommendation that legislation be enacted defining the rules of procedure of Federal courts in the issuance of injunctions. Such legislation had been promised in the Republican platform upon which President Taft was elected. The President declared that the abuse of the enjoining power of the courts could be prevented by a law forbidding the use of such power until an opportunity to be heard had been given the parties to be enjoined. He thought exception should be made, and a temporary injunction for seven days allowed, where it can be shown that any delay in issuing the restraining order will result in irreparable injury.

As at the previous session, the labor leaders secured the introduction in Congress in December, this time by Representative Sabath of Illinois, of a bill providing for trial by jury in cases of contempt arising from alleged violation of injunctions, such alleged violation not having been committed in the actual presence of the court; and providing that the judge issuing an injunction shall not be qualified to try those accused of violating it. See LABOR, AMERICAN FEDERATION OF, and BOYCOTT.

INSANITY. Dr. Copp, secretary to the Massachusetts State Board of Insanity, reports the number of insane as 11,544 on October 1, 1908, besides 538 paroled or boarded out, showing an increase of 776 for the year, against an increase of 397 the previous year. Total commitments, including 195 voluntary admissions, were 3195, of whom 2491 were first cases. Alcohol was a causative factor in 21.84 per cent. Secretary Kellogg, of the Connecticut State Board of Charities, reports 3603 patients in insane institutions September 30, 1908 (including an estimated 300 among the town poor).

The Ohio Board of State Charities showed 10,564 insane enrolled on February 15, 1909, of whom 465 were absent on leave. On November 15, 1908, an increase of 288 for the year preceding is shown by the figures. Chairman Jones of Washington State Board of Control stated on September 30, 1908, that there were 1855 insane in the institutions, against 1679 on September 30, 1907. In the former year 613 were admitted, in the latter, 776; of these totals 8.3 per cent. and 7.4 per cent. respectively were of alcoholic origin. Secretary Mitchell of the Committee on Lunacy of the Pennsylvania Board of Commissioners of Public Charities in the report for 1907, published in 1909, gives the number of insane on Sep-

tember 30, 1907, as 14,808 of which number 432 are criminals. In 1909 a building was begun for the latter class. During 1906-7 2014 new patients were admitted. Secretary Butler of Indiana Board of State Charities reported on March 31, 1909, 4613 insane patients under care, an increase of 387 during the previous 6 months, 335 being temporarily absent. Secretary Mastin, in the first annual report of the State Board of Charities of Virginia, for the year ending September 30, 1909, gives the following figures: 3536 patients in hospitals for the insane September 30, 1908; admitted during the year, 1202; remaining September 30, 1909, 3943 patients. Chairman Blair of the Commissioners of Public Charities of North Carolina states a total of insane under care November 30, 1908, of 2298, while in addition there were 26 in jails and 162 in county houses. Secretary Herring of the Maryland State Commission in Lunacy reveals in his report an enrollment of 3505 insane, including feeble-minded, in the various institutions, of which number 799 were in county alms-asylums, 135 in alms-houses, and 920 in private institutions on November 30, 1908. A year previous the total was 3347, and 1470 were admitted during the twelve months. A practically new commission, appointed in 1908, during a thorough investigation uncovered abuses in the treatment of the insane in the alms-houses and county houses, which will be promptly corrected; county supervisors, medical societies and the public being aroused and brought into line to agitate for complete State care. President Edison of the Board of Charities of the District of Columbia shows the number of insane at the Government Hospital for such patients as 1304 on July 1, 1907; admissions during the year following being 327, of which number 11 were re-admissions; the total enrollment being 1367 on June 30, 1908, of whom 7 were on parole. Secretary Graves of the Illinois State Commissioners of Public Charities reports 10,522 insane in State hospitals on July 1, 1909, all patients formerly in alms-houses having been transferred to State care. Of this number 212 were in the asylum for insane criminals. In addition to those enumerated, 526 were on parole, and 18 were temporarily absent. The annual increase is about 300. During 1909, the efforts of 13 years culminated in the enactment of a new charities administration law, under whose terms the institutions were named State Hospitals; a psychopathic institute with director and staff was established; employees, except superintendents, were put under civil service regulations; provision was made for boarding insane in private families; after-care was instituted; inspection and licensing of private hospitals were provided; occupation of inmates was inaugurated; conferences of superintendents with the Board of Administration and the Commission was authorized.

President Ferris of the New York Commission in Lunacy reports 31,541 committed insane on September 30, 1909, of whom 1127 were in the hospitals for criminal insane, and 1051 in the 22 licensed private houses. The net increase for the year in the 15 public hospitals was 1015, in private houses 15. The number of first admissions during the year was 5146, while that of relapsed cases was 1328, making a total of 6474 cases. From the 13 civil public hospitals

1524 patients were discharged recovered, 215 much improved, 901 improved; while 2374 patients died. Of those admitted, 36 proved to be mere inebriates, 11 were drug habitués and 53 were found to be not insane under the statute. Advantage of the voluntary admission provision of the law was taken by 94 persons. The amount appropriated for maintenance in the annual bill was \$4,848,046. Upon new buildings and improvements, exclusive of reappropriation of amounts formerly appropriated, was expended \$1,376,373. The annual per capita cost of maintenance (exclusive of charge for rent of buildings) was \$186.67. Delay in completion of additions causes an overcrowding of over 2000 patients. Creedmoor Rifle Range, covering 200 acres, was not sold, and no new site on Long Island was obtained; but 564 acres were secured in Yorktown, Westchester county, upon which a hospital for 2000 will be erected, commencing in 1910. Two additional sites are needed at once. The Psychiatric Institute of the Hospitals, intimately connected with Manhattan State Hospital on Ward's Island, continued to provide courses of instruction and carry on research and laboratory work; its Director continued to conduct inter-hospital conferences in various hospital districts, the quarterly conferences of superintendents with the Commission were held, and the quarterly Bulletin published. A statistician pursued his work on tables and data from April through the year.

The report of the Commissioners in Lunacy for England shows that there were known to be under care in England and Wales on January 1, 1909, 128,787 insane, exceeding by 2703 the number certified a year ago. The average increase for the past ten years has been 2370 persons. The increase this year is assigned to the rise in numbers of those in the county and borough asylums. In the Metropolitan District asylums only 227 new cases were retained. There were 11,455 insane in the ordinary workhouses and 847 in the criminal asylums (Broadmoor and Parkhurst). The number boarded out from county asylums in workhouses was 103. The ratio in England and Wales of insane to population is 1 to 278, as compared with the ratio of 1 to 450 in the United States, and 1 to 284 in New York State. The Commissioners advocate the provision of observation wards, reception houses and mental hospitals into which the insane could be received on the first manifestation of derangement. This is in line with the work done at the psychopathic wards of Bellevue Hospital and Kings County Hospital, New York City, and Pavilion F of Albany Hospital, and advocated by the New York Commission in Lunacy for one general medical hospital in each town or city in the State. Consult *New York State Hospitals Bulletin*, July, 1908, and May, 1909, "The Care of the Insane Pending Commitment." See ALCOHOL.

INSECTS. See ENTOMOLOGY.

INSECTS AND THE PROPAGATION OF DISEASE. The part played by the common house fly (*Musca domestica*) in the spread of typhoid fever and other intestinal diseases has long been known, and its connection with epidemics of these maladies has been shown on numerous occasions. Dutton calls attention to the fact that other familiar insects may also become carriers of typhoid fever under favorable conditions. Pomace-flies, or little fruit flies, the most abundant species of which is *Drosophila*

ampelophila, the vine-loving pomace-fly, is frequently found feeding on table fruits such as pears, peaches, plums, grapes and apples. They also feed on foul decaying substances, and so may deposit pathogenic germs upon fruits, which they often breed in as well as feed upon. In Pittsburg, in September, 1908, Dutton secured cultures from pomace-flies found in a garbage can, in which excreta had been thrown, within 100 feet of a restaurant where hundreds of people dined every day. Of the blue-bottle or green-bottle flies the *Lucilia caesar* is the commonest and most likely to frequent houses, especially before rain. Some species breed on meat, others on open sores, decaying vegetable material, cow manure and human dejecta. Their habits make them a tangible factor in the dissemination of typhoid fever, and Dutton has observed an instance in which several members of a family were infected through the agency of these flies, which fed upon the discharges of a typhoid patient and carried the infected material to the food used by the household. House ants feed on all sorts of waste and are found about squalid homes in great numbers. Three varieties are common: The little red ant (*Monomorium pharaonis* L.); the little black ant (*Monomorium minutum* Mayr); and the pavement ant of the Atlantic seaboard (*Tetramorium caespitum* L.). While their probable connection with the spread of typhoid has not been scientifically proved, their habits of feeding and their free access to the family food in unclean homes make it probable that they carry infection in some instances and are therefore a constant menace. Cockroaches are among the commonest and most offensive insects which frequent human habitations. The American roach (*Periplaneta Americana*) is plentiful in the United States. Domestic roaches congregate in large numbers at night and feast upon almost any kind of food, dead animal matter, cereal products, leather, cloth, etc. Their omnivorous habits make them a prolific source and ready carrier of infectious diseases. Engelmann observed that this insect may carry typhoid from the source of infection on its body or limbs to household drinking vessels or even into food. Dutton accuses the house flea (*Pulex irritans* L.) of carrying typhoid fever. From 500 human fleas which were allowed to suck the blood of typhoid patients, he secured 20 typhoid cultures, and 5 cultures from 650 dog and cat fleas. The bedbug (*Cimex lectularius* L.) is found in all sorts of dwellings. It is nocturnal in its habits, and while its food is normally human blood, yet it may subsist for a time on other substances. The bedbug has been found to be a factor in the transmission of various diseases, such as tuberculosis and relapsing fever. Dutton observed that among the Poles, Italians and Russians in filthy quarters where beds had been used by typhoid patients, succeeding occupants were stricken with typhoid fever. He collected some bedbugs, starved them for several days, and placed them on the abdomen of a typhoid patient, incarcerating them under a square piece of cloth fastened at the edges. After six hours they were removed, and allowed to remain 24 hours without food, and then transferred in a corresponding way to a healthy person. After their removal, cultures were made from the bugs and typhoid bacilli found. The healthy subject developed a virulent typhoid infection in 14 days. The vitality of the *Bacillus typhosus* in the bedbug

persists for several weeks without any apparent loss of virulence; in fact the virulence may even be increased. Mosquitoes which have sucked the blood of typhoid patients contain typhoid bacilli, and the vitality and virulence of these germs are preserved during their stay in the insects. Typhoid bacilli may be found in mosquitoes from 8 to 21 days after they have sucked the blood of a typhoid patient. The feces of these infected insects contain virulent bacilli as long as they persist in the alimentary canal or in the blood or secretions. Infected insects may communicate the disease for 2 or 3 weeks. The bed linen or other material, on which infected insects may be crushed, offers a ready medium of dissemination. See also TROPICAL MEDICINE.

INSTITUTE OF AGRICULTURE. See AGRICULTURE.

INSURANCE, LIFE. The subjects of general interest throughout the year were the restrictive legislation growing out of the insurance scandals of 1905, and the tendency toward increased taxation of insurance premiums or assets. The New York companies in particular continued their objections to the restriction of the amount of new business that may be written in any year. In a pamphlet prepared by President Ide of the Home Life Insurance Company it was shown that the amount of insurance in force in the New York Life, the Mutual, and the Equitable companies had steadily diminished since 1905, but that the death claims paid had not declined to an equal degree. He held that, owing to the limitation of new business to \$150,000,000 a year, the mortality ratio of these large companies must eventually increase. To show the extreme to which the rather wholesale and indiscriminate restrictive legislation has gone, it was stated that one State prohibits discrimination against negroes, in spite of the well-established fact that negro mortality is above the average. In this class also is the law making the insurance company liable even when suicide is committed immediately after the issuance of the policy; making the recommendation of the medical examiner final as to the issuance of a policy, even though he may have conspired with the applicant to defraud the company; imposing a penalty for resisting a claim believed to be unjust, and regulating the details of management. While it was generally agreed that some of the legislation of this sort was foolish, and while some writers condemned in an outspoken manner the whole policy of legal regulation as against the natural regulation of competition, there were those who held that insufficient time had elapsed to make possible a rational judgment of the real merits or demerits of the fundamental laws of 1906.

The growth in the taxes levied upon insurance throughout the country was shown by contrasting the \$1.40 per \$100 gross premiums taken in taxes in 1890 with the \$2.30 taken in 1909. The aggregate in the latter year exceeded \$12,000,000. At the meeting of life insurance presidents and officials in Chicago in January existing taxes were condemned as excessive, inequitable, and an unjustifiable burden on policyholders. A campaign was planned for bringing this matter to the attention of policyholders and legislators. The argument was frequently reiterated that the taxation of

insurance was injudicious, because insurance, both directly and indirectly, encourages thrift. The opposition was sounded at the fortieth annual session of the National Convention of Insurance Commissioners at Colorado Springs late in August by Commissioner Love of Texas. He contended that the property of insurance companies should be taxed like all other property. He held the argument that such a tax would check savings to be equally effective against a tax on real estate or any other form of investment. He favored a uniform rate among the different States on the gross premium receipts.

An interesting development of recent years has been the organization of numerous companies in the South and Southwest. In the ten years ending in 1909 there were 130 companies organized on the legal reserve plan that were still in business in 1909. Of these, 78 were organized during the last half of that period. They were in part stimulated by the insurance scandals of 1905 and were built up largely on local pride and sectional antipathy. While there were failures among these new companies, they needed only honest and conservative management to insure success.

That the insurance possibilities of the country are far from exhausted was shown by a table prepared by an actuary for the Travelers Insurance Company. This took no account of industrial and assessment insurance, and therefore considerably understated the number of persons insured. The summary showed that of the 40,142,000 insurable persons in the country between the ages of 15 and 50, only 12.5 per cent. were insured under the usual forms of life insurance.

The year opened with a sensation in life insurance circles due to the removal of the assets and records of the Washington Life Insurance Company from New York on the night of December 31, 1908, by the Pittsburg Life and Trust Company. The latter company had in the previous September purchased a majority of the stock of the former company. The transferred assets included \$5,000,000 in cash and securities and \$13,000,000 in mortgages. The New York State Insurance Department at once made a peremptory demand for the return of the assets to its jurisdiction as a guarantee that the interest of policyholders would be protected. This was at length done the third week in January. At the same time the Pittsburg company applied for a permit to do business in New York State. This was denied in June, and the suggestion was made that the Washington Life policies should be reinsured and the assets kept within the State. In July, however, satisfactory conditions having been agreed upon, a permit was granted. Among the conditions were the provision that property of the company equal to the surplus and reserve of Washington Life policies should be kept within the State and the agreement that the accounts of the Washington Life policies should be kept separately. These conditions were believed fully to protect the interests of the policyholders.

Early in the fall of 1905 Mr. Thomas F. Ryan had obtained possession of the Hyde holdings of stock in the Equitable Life Assurance Society, this amounting to \$51,000 of the total \$100,000 of the society's capital stock. While the reorganization of the company had

provided that 28 of its 52 directors should be chosen by the policyholders, the control of a majority of the stock by one man was deemed by many an unsatisfactory condition. This dissatisfaction was lessened but by no means removed by the acquisition of this stock by Mr. J. P. Morgan late in 1909. The contention was still made that the vast wealth of the company and the interests of a half-million stockholders require the full mutualization of the society.

In January the Associated Fraternities of America, including most of the leading fraternal societies of this country, decided to have prepared a new mortality table. A commission of men of high standing in the fraternal insurance world was accordingly appointed to secure data from all fraternal societies in the United States and Canada. It is expected that a total membership of three million will be brought within the inquiry, and that on such a broad basis a truly scientific table of mortality for such societies may be prepared.

In December the new Superintendent of Insurance of New York, William H. Hotchkiss, brought to light certain irregularities in the management of the Phenix Insurance Company of Brooklyn. He charged that Mr. George P. Sheldon, president of that company for twenty-two years, had regularly speculated with the funds, with considerable loss to the Company; that President Sheldon had made loans to various officials of the State Insurance Department, and by this means and otherwise had escaped an examination during the entire period of his incumbency; that the assets of the Company were juggled with so as to make a favorable showing on December 31 of each year; and that the funds were tampered with in various other ways. The company's solvency was found to be unimpaired by the various irregularities disclosed. For fire insurance see FIRE PROTECTION.

INTERNAL REVENUE. See LIQUORS, FERMENTED AND DISTILLED.

INTERNAL WATERWAYS. See WATERWAYS, INTERNAL.

INTERNATIONAL ARBITRATION. See ARBITRATION, INTERNATIONAL.

INTERNATIONAL PEACE CONFERENCE. See ARBITRATION, INTERNATIONAL.

INTERNATIONAL SCHOOL OF PEACE. See ARBITRATION, INTERNATIONAL.

INTERSTATE COMMERCE COMMISSION. See RAILWAYS.

IOWA. One of the North Central Division of the United States. Its total area is 56,147 square miles. According to a Federal estimate made in 1909, the population in that year was 2,192,608.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, are as follows: Corn, 289,800,000 bushels, valued at \$142,002,000, from 9,200,000 acres; winter wheat, 3,110,000 bushels, valued at \$2,892,000, from 144,000 acres; spring wheat, 4,336,000 bushels, valued at \$4,032,000, from 295,000 acres; oats, 116,100,000 bushels, valued at \$40,635,000, from 4,300,000 acres; barley, 10,890,000 bushels, valued at \$5,009,000, from 495,000 acres; rye, 943,000 bushels, valued at \$594,000, from 53,000 acres; buckwheat, 135,000

bushels, valued at \$115,000, from 9000 acres; flaxseed, 294,000 bushels, valued at \$382,000, from 30,000 acres; potatoes, 12,905,000 bushels, valued at \$7,098,000, from 145,000 acres; hay, 5,983,000 tons, valued at \$42,479,000, from 3,648,000 acres. The crop of winter wheat was about the same as that of 1908, while spring wheat showed a decrease, the production of 1908 having been 4,960,000 bushels. The corn crop was practically the same as that of 1908, with a slightly increased acreage. The State ranks second in the production of oats, being surpassed only by Illinois. The crop of 1909 showed an increase over that of 1908, which was 110,440,000 bushels. The acreage, however, decreased in 1909 from 4,545,000 acres to 4,300,000 acres. In the production of hay the State also ranks second, being surpassed only by New York. The crop of 1909 showed a considerable decrease over that of 1908, which was 6,460,000 tons. The acreage also was somewhat decreased. In the production of corn Iowa is surpassed only by Illinois. The farm animals in the State on January 1, 1910, were as follows: Horses, 1,447,000; mules, 47,000; dairy cows, 1,570,000; other cattle, 3,611,000; sheep, 754,000; swine, 6,485,000. The State ranks first in the number of swine and is surpassed only by Texas in the number of neat cattle, by New York in the number of dairy cows, and by Illinois in the number of horses. The wool clipped for 1909 was estimated at 3,950,800 pounds.

MINERAL PRODUCTION. The chief mineral production of the State is coal. In this the State ranked eighth in 1908, having surpassed Kentucky, which previously had occupied this relative position. The total production in 1908 was 7,161,310 short tons, with a value of \$11,706,402. This was a decrease of 413,012 short tons from the production of 1907. The reason to be assigned to the comparatively slight decrease in the production of coal in 1908 is that the State is almost entirely agricultural, manufacturing not having been developed to such an extent as in some other portions of the country. Farmers were generally prosperous throughout 1908 and the consumption of coal was, except for the decrease due to mild weather, equal to normal. Mining operations were suspended in a large number of mines in the State while the wage scale was under discussion, but as consumers generally had anticipated the shut-down and had laid in a supply during the preceding months, this produced no material inconvenience. During the suspension 5248 men were idle upon an average of 23 days each. The total number of men employed in the coal mines of the State in 1908 was 16,021, as against 15,585 in 1907, the industry showing an increase in labor supply notwithstanding the decrease in production. During the year there were 121 accidents in the mines of the State, of which 31 were fatal and 90 were non-fatal. It is estimated that the original coal supply of the State was 29,160,000,000 tons, of which 223,000,000 tons have been exhausted. The clay working industries of the State are important, giving it fourth rank in the production and value. In 1908 the value of the clay products was \$4,069,497, which was a considerable increase over that of 1907, which was \$3,728,785. Other mineral products of the State are coal products, including coal tar, illuminating gas,

stone, zinc, lead, and mineral water. The total value of the mineral products for the State in 1908 was \$18,088,537, as compared with a value of the product in 1907 of \$17,623,094.

FINANCE. The report of the State Treasurer for the biennial period ended June 30, 1908, showed a balance in the general revenue fund July 1, 1907, of \$872,877. For the fiscal year ended June 30, 1908, the receipts were \$3,663,154. The disbursements for the same period were \$3,891,842, leaving a balance July 1, 1908, of \$644,189. The principal sources of revenue are property, insurance companies and the inheritance tax, and the payments by the counties for the support of the insane. About 50 per cent. of the disbursements are for the State charitable institutions. See below.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include hospitals for the insane at Cherokee, Clarinda, Independence, and Mt. Pleasant; the Reformatory, at Anamosa; the State Penitentiary, at Fort Madison; Industrial School for Boys, at Eldora; Industrial School for Girls, at Mitchellville; School for the Deaf at Council Bluffs; College for the Blind, at Vinton; Iowa Soldiers' Home, at Marshalltown; Iowa Soldiers' Orphans' Home, at Davenport; Institution for Feeble-Minded Children, at Glenwood; State Hospital for Inebriates, at Knoxville; and State Sanatorium for the Treatment of Tuberculosis, at Oakdale. The cost of the maintenance of these institutions from October 1, 1908, to October 1, 1909, was \$1,537,063. Special appropriations were made for their support to the amount of \$373,925.

EDUCATION. The average school attendance for the school year 1909 was 361,805. The number of female teachers was 2801 and male teachers 25,006. The average monthly salary of male teachers was \$73.58 and of female \$44.50. The total expenditures for education in the State during the year was \$12,702,199.

POLITICS AND GOVERNMENT. On January 14, Beryl F. Carroll was inaugurated Governor and George W. Clarke Lieutenant-Governor of the State. In his inaugural address Governor Carroll declared for tariff revision and said that it should be made without departure from the principle of protection, which, he asserted, had been largely responsible for the greatness of the United States. He said that much remained to be done by the legislature in the way of regulating corporations, and that the laws already passed along this line should be closely scrutinized for the purpose of perfecting and perpetuating such laws as will best protect the interests of the people. He advocated the appointment of a commission of not more than ten or fifteen citizens of the State to investigate the subject of the conservation of natural resources. He favored the appointment of a public utilities commission. In regard to the enforcement of the liquor laws, Governor Carroll said that the statute problem was one of the hardest of any on the books to enforce. In the matter of local influence in regard to its enforcement he said: "In the main I believe the people will be given just such official service as they demand. There may be—in fact there is—great difference between public officials as to their natural inclination toward strict construction and enforcement of laws, but I believe there are few men in an official position who will not respond to the demand

of the people." The Governor declared that if officers failed or neglected to do their duty in the matter of enforcement, provision should be made for their peremptory removal. On January 19 former Governor Albert B. Cummins was elected United States Senator to succeed Senator Allison. For the first time in the history of the State a United States Senator was elected without a party caucus and without a nominating speech. The Republicans in the Assembly were unanimously for Senator Cummins, who was the Republican choice at the primary elections of 1908. The Democrats voted for Claude Porter.

A joint resolution to amend the constitution of the State, so as to provide for absolute Prohibition, was introduced into the legislature early in the session, and on March 10 it was passed by the House by a vote of 68 to 37. The resolution was, however, defeated in the Senate on March 31, by a vote of 26 against and 21 for. This action will probably postpone constitutional Prohibition for the State for two years at least. On the same date, by a decision rendered in the District Court at Davenport, it was declared unlawful for Iowa saloonkeepers to reengage in the liquor business in the State after once being enjoined, without securing the written consent of a majority of the voters in the State. Hitherto saloonkeepers who had been enjoined from the sale of intoxicating liquors have reentered business by securing new permits from the Councilmen and filing new bonds with the County Auditor. On April 15 Governor Carroll signed a bill restricting the number of saloons in the State. See **ELECTORAL REFORM.**

OTHER EVENTS. On August 27 the removal of Mayor A. M. Henderson of Marengo from office was ordered by Judge Preston of Oska-loosa, under the Cosson law, passed by the last General Assembly. The ground alleged was intoxication. On September 23 James C. Mabray and 84 others were indicted by a Federal grand jury on the charge of conspiring to defraud by illegal use of the United States mails. It was declared that the amounts lost by the alleged victims of Mabray and others would exceed half a million dollars. The list of the names of the victims given in the indictment included men of prominence in all parts of the country and victims in 18 States. As a basis of operation the combination used the cities of Council Bluffs, Davenport and Burlington in Iowa, and St. Louis, Little Rock, Seattle, Denver, and New Orleans.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those given below. Measures were passed giving district courts power to deal with parents and children when the latter are neglected. Provision was made for the removal of county attorneys, sheriffs, mayors, and police officers by the district court for neglect of duty and other causes. Laws were enacted establishing the rule of comparative negligence in railroad cases, prohibiting drinking on railroad trains, limiting saloons to one for every thousand of population, regulating hotels, prohibiting secret fraternities in public schools, making Lincoln's birthday a holiday, providing for the parole of convicts, prohibiting discrimination in the purchase of dairy and poultry products or grain for the purpose of creating a monopoly, and prohibiting the use of cigarettes by minors.

OFFICERS: Governor, B. F. Carroll; Lieutenant-Governor, George W. Clarke; Secretary of State, W. C. Hayward; Treasurer, W. W. Morrow; Auditor, J. L. Bleakly; Attorney-General, H. W. Byers; Superintendent of Education, J. F. Riggs; Adjutant-General, Guy E. Logan—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, William D. Evans, Republican; Judges, Scott M. Ladd, Republican; Emlin McClain, Republican; John C. Sherwin, Republican; Horace E. Deemer, Republican; S. M. Weaver, Republican; Clerk, H. L. Bousquet, Republican.

The State Legislature of 1909 was composed of 34 Republicans and 16 Democrats in the Senate and 79 Republicans and 28 Democrats in the House. The State Representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

IOWA, STATE UNIVERSITY OF. An institution of higher learning at Iowa City, Iowa, founded in 1847. There were in attendance in 1909 2246 students, with 160 members of the faculty. The number of books in the library was 87,000. During the year a law building, to cost \$125,000, was in process of construction and was completed in January, 1910. A physics building, to cost \$215,000, was begun during the year, as well as an extension of the University Hospital, to cost \$75,000. Engineering shops to cost \$20,000 were also built during the year. The president is George E. MacLean, LL. D. The income of the University is about \$100,000 annually.

IRELAND. See GREAT BRITAIN.

IRON AND STEEL. The year 1908 was marked by a great depression in the iron indus-

try to 14,023,247 long tons, as compared with 23,362,594 long tons in 1907.

The immediate result of the financial depression of the fall of 1907 was the cessation of operations in a large number of manufacturing plants, blast furnaces, and mines, due to the decrease in the demand for their product. From the middle of 1908 conditions slowly improved, very slowly during the summer, but more rapidly during the fall and winter, so that by the summer of 1909 a normal state of affairs again prevailed. The demand for iron and steel products was reduced over 50 per cent. as compared with previous years. In spite of this the prices did not show such a marked decline as might have been expected, owing to an agreement among the iron makers to desist from destructive competition. The total decline of prices in finished steel products from January 1 to December 31, according to the *Iron Trade Review*, averaged only about \$2.50 per long ton.

The year 1908 marked an epoch in steel manufacture, for in this year the production of open-hearth steel passed that of Bessemer steel for the first time in the history of steel making in the United States. The tonnage of both, however, was much lower than that of 1907. The decrease in the production of pig iron and steel in 1908 from that of 1907 was about 40 per cent., while that of iron ore was about 30 per cent.

During 1908 iron ore was mined in 27 States. Of these, three States produced ores for fluxing purposes only; the others produced ores for blast furnace use. The following table gives a comparison of the iron production by States for 1907-8:

State	1907		1908	
	Quantity, in long tons	Value	Quantity, in long tons	Value
Alabama	4,039,453	\$4,863,129	3,734,438	\$4,358,902
Arkansas and Texas	118,667	120,060	65,968	80,663
Colorado	11,714	21,085	10,176	18,432
Connecticut and Massachusetts	37,168	136,440	28,112	105,457
Georgia	444,114	837,102	321,060	540,189
Kentucky, Maryland, and West Virginia	62,808	95,891	53,235	84,898
Michigan	11,830,342	38,441,330	8,839,199	25,150,861
Minnesota	28,969,658	76,668,836	18,662,220	42,313,974
Missouri	†111,768	†226,286	98,414	218,182
Montana, Nevada, New Mexico, Utah and Wyoming	†819,544	†967,190	†518,449	†708,760
New Jersey	549,760	1,815,586	394,767	1,162,474
New York	1,375,020	2,820,135	697,473	2,098,247
North Carolina	50,439	113,488	48,522	76,877
Ohio	23,589	41,081	26,585	36,736
Pennsylvania	837,287	1,298,717	443,161	572,346
Tennessee	813,690	1,325,134	635,343	876,007
Virginia	786,856	1,538,920	692,223	1,465,691
Wisconsin	838,744	2,665,737	733,993	2,027,208
	..51,720,619	131,996,147	35,983,336	81,845,904

* Texas alone. † Includes Iowa. ‡ Includes

try of the United States. The greatest decline took place in the fall of 1907, but the depression continued until the middle of 1908, from which time there was a steady but slow recovery. Resulting from this depression the production of iron ore dropped below that of the three preceding years and the output of pig iron was the lowest since 1901. The total quantity of iron ore produced amounted to 35,983,336 long tons, as compared with 51,720,619 long tons in 1907; the output of pig iron to 15,936,018 long tons, as compared with 25,781,361 long tons in 1907; and that of steel

1907, California and Washington; 1908, Wash-

ington. During 1908, of the 407 iron ore mines in operation, 150 produced over 50,000 long tons of iron ore, as compared with 169 mines in 1907. The maximum production of any one mine was 2,926,614 tons, from the Hull Rust of the Mesabi range in Minnesota. The apparent consumption of iron ore in the United States in 1908 was 32,473,268 long tons, as compared with 51,880,398 long tons in 1907. This is merely an estimate, for no data are available in certain factors which should enter into the official result.

The quantity of iron ore imported into the

United States during 1908 was less than the importation during any year since 1889, with the exception of the year 1904. About three-fourths of the imports were from Cuba, about one-sixth from Spain, and the bulk of the rest from Newfoundland. The total amount imported was 776,898 long tons, with a value of \$2,224,248. The United States exported 309,099 long tons, a slight increase over the iron ore exports in 1907.

During 1908 the production of pig iron, as noted above, amounted to 15,936,018 long tons, as compared with 25,781,361 long tons in 1907. The blast furnaces in operation on December

ity. The Southern iron ore mines also made an increased production. In the East there was much work done in extending old mines and in reopening deposits formerly worked. In the Lake Champlain and Adirondack region in New York, there was much development of this kind.

The output of pig iron in 1909 increased greatly with slight fluctuations throughout the year. In February and in April the production was slightly less than in the preceding months, and except in these months the increase was steady. The *Engineering and Mining Journal* estimates the total production for 1909 at 25,711,846 long tons, as compared with

State	1907			Total in- gots and castings	1908			Total in- gots and castings
	Bessemer	Open- hearth	Crucible and all other		Bessemer	Open- hearth	Crucible and all other	
Massachusetts, Rhode Island, and Con- necticut	1,421	239,797	3,980	245,198	837	158,417	3,344	162,598
New York and New Jersey	858,681	706,019	37,969	1,602,669	351,794	350,348	19,911	722,053
Pennsylvania	4,351,841	7,868,353	88,750	12,308,944	2,106,382	5,322,229	37,254	7,465,865
Delaware, Maryland, District of Columbia, Virginia, West Vir- ginia, Kentucky, Georgia, and Ala- bama	840,865	412,656	1,900	1,255,421	375,756	499,096	.....	874,852
Ohio	3,636,679	819,642	1,690	4,458,011	1,955,446	525,171	1,172	2,481,789
Indiana and Illinois..	1,723,073	1,194,913	6,251	2,924,237	1,237,747	650,403	4,736	1,892,886
Other States.....	254,989	308,356	4,769	568,114	88,793	331,065	3,346	423,204
	11,667,540	11,549,736	145,309	23,362,594	6,116,755	7,836,729	69,763	14,023,247

31, 1908, numbered 459, of which 236 were in and 223 were out. The greatest number of ovens was in Pennsylvania, where there were 160, 73 being in and 87 out.

The above table shows the production of all kinds of steel ingots and castings in 1907 and 1908 in long tons.

The open-hearth castings in 1908 amounted to 7,836,729 long tons, while the Bessemer castings amounted to 6,116,755 long tons.

The year 1909 marked a great revival of the iron industry in the United States, so that the production of both iron ore and pig iron reached nearly that of 1907, the year of maximum output up to the present time. Estimates made by the United States Geological Survey indicated an increase in 1909 of more than 9,500,000 tons of pig iron and more than 15,000,000 tons of iron ore. The estimated production of pig iron and iron ore in the United States in 1909 was in round numbers 51,000,000 long tons, according to the figures of the United States Geological Survey. The estimates of the *Engineering and Mining Journal* are slightly larger, as will be seen in the table given below, which records the production in 1908-9, in long tons, with the changes indicated:

	1908	1909	Changes
Lake Superior.....	26,014,987	42,533,873	I. 16,518,886
Southern States..	5,900,000	7,350,000	I. 1,450,000
Other States.....	1,875,000	3,150,000	I. 1,275,000
Total product'n..	33,789,987	53,033,873	I. 19,243,886
Add imports.....	776,896	1,650,000	I. 873,104
Total supply....	34,566,883	54,683,873	I. 20,116,990
Deduct exports...	309,099	465,000	I. 155,901
App. consumpt'n.	34,257,784	54,218,873	I. 19,961,089

The mines in the Lake Superior region during the year were pushed to the utmost capac-

ity. The same authority divides the production in long tons as indicated in the following table:

	1908	1909	Changes.
Foundry and forge..	4,307,734	6,866,274	I. 2,558,540
Bessemer	7,216,976	10,357,290	I. 3,140,314
Basic	4,010,144	7,892,318	I. 3,882,174
Charcoal	249,146	391,732	I. 142,586
Spiegel and ferro...	152,018	204,232	I. 52,214
Total	15,936,018	25,711,846	I. 9,775,828

Figures for the steel production for 1909 are not available for any part of the year. The only approximation that can be made is an estimate based on the output of pig iron. The *Engineering and Mining Journal* estimates the production as follows: Bessemer, 10,750,000 tons; open hearth, 12,500,000; other, 150,000 tons; open-hearth, 12,400,000 tons, an increase of 9,393,000 tons over 1908 and a gain of about 100,000 tons over 1907. The revival in production and demand was shown earlier and more strongly in steel products than in foundry products and wrought iron. There was an increase in the production of open-hearth steel, owing to the opening of the Gary works and the substitution of open-hearth furnaces for Bessemer converters in some important plants.

UNITED STATES STEEL CORPORATION. This corporation produced about 60 per cent. of the total output of finished material during 1909. Its managers were obliged to abandon their policy of limited output and high prices, but this was done in a way which preserved their influence in the trade. The earnings of the corporation showed an increase of between 40 and 50 per cent. over those of 1908. For the

nine months ended with September, 1909, of which reports were available at the end of the year, the total net earnings of the corporation amounted to \$90,508,666, and the surplus, after meeting all fixed charges, was \$51,427,605. The net earnings increased from \$22,921,268 in the first quarter to \$38,246,907 in the third quarter, and the surplus from \$11,873,106 to \$23,543,067. In the June quarter the dividends on the common stock were increased from 0.5 to 0.75 per cent. quarterly, and for the September quarter there was a further increase of 1 per cent. It was estimated that the earnings of the fourth quarter of the year would bring the total net earnings for the year up to about \$135,000,000 and the surplus to \$80,000,000. The unfilled orders on the books on September 30, 1909, amounted to 4,796,833 tons, an increase of over 1,000,000 over the first of the year.

IRON AND STEEL IN FOREIGN COUNTRIES. In nearly all the chief iron-producing countries the year 1909 was one of gradual recovery from the depression of 1908, although depression and recovery were less sharp than in the United States. In Germany the German Iron and Steel Union reports the pig iron production for the eleven months ended November 30 as 11,741,851 metric tons, as compared with 10,716,985 in 1908. In France the production of pig iron for the first half of the year was 1,713,461 metric tons, a decrease of 33,173 tons from 1908. Steel production, however, showed an increase of 141,350 tons, the total for the half year being 1,506,329 tons. In Great Britain the British Iron Trade Association reported the production of pig iron in the first half of the year 1909 at 4,715,679 long tons, as compared with 4,635,851 long tons in the first half of 1908 and 4,653,989 in the second half. The average number of furnaces in blast during the half year was 313. The steel production showed little change. The foreign trade showed a decrease chiefly in ships. The exports and imports of iron and steel and their manufactures for the eleven months ending November 30 was reported by the Board of Trade as follows: Exports, £66,365,940; imports, £11,349,051. The decrease in imports is £6,944,674, and the increase in imports is £121,598. The imports of iron ore into Great Britain for the eleven months ended November 30, 1909, were 5,712,220 long tons, as compared with 5,521,199 long tons in 1908. Belgium in 1909 showed the greatest increase in production of any European country. The total pig iron made in the ten months ending October 31, 1909, was 1,322,490 metric tons,

semer steel ingots, 40,900 tons; hearth ingots, 458,100 tons; total steel, 499,000 tons. The production was decreased by the general strike (see SWEDEN, paragraphs on *History*) and by the light demand. The exports were 176,200 tons. For the figures on foreign production of iron and steel given above, we are indebted to the *Engineering and Mining Journal*.

IRRIGATION. Previous articles on irrigation have dealt almost exclusively with the United States, but the same activity in extending irrigation which has been so noticeable in the United States for the last few years has existed in other countries. The movement for government aid in the construction of irrigation works, which began in the Western Hemisphere with the passage of the United States Reclamation act in 1902, has spread to Latin America, resulting in the passage in Brazil of the law of 1904 providing for the construction of irrigation works by the government; in Mexico in the passage of the law of June 17, 1908, providing for the lending of government credit for securing funds for the construction of irrigation works; in the appropriation of \$4,000,000 for the construction of irrigation works in Porto Rico; and in the creation of commissions to investigate the subject and propose systems of government participation in this work in Argentina, Brazil, and Chile. In the arid countries of the Old World the governments have very generally aided to a greater or less extent in the construction and management of irrigation works, notably in Italy, India, Egypt, Turkestan, and Australia. The form in which this aid is extended and something of the results are given in the following paragraphs:

UNITED STATES. In the United States most of the irrigation works have been constructed by private parties, the area irrigated in that way up to 1909 being estimated at 13,000,000 acres, including lands reclaimed under the Carey act. Under the Carey act (act of August 18, 1894) the United States granted to each of the arid States 1,000,000 acres on condition that the States provide for its reclamation. In 1908 the provisions of this act were extended to the Territories. The States have provided for the actual work of reclamation being done by private parties under contracts with the States, fixing the prices at which water is to be furnished the settlers, and certain other conditions. The operations under this law up to November 1, 1909, as shown by the records of the General Land Office, are as follows:

OPERATIONS UNDER CAREY ACT TO NOVEMBER 1, 1909

	Acres
Area applied for.....	4,383,553.79
Area relinquished or rejected before segregation.....	83,611.71
Area segregated.....	2,776,599.83
Area relinquished or canceled after segregation.....	106,795.20
Area patented.....	314,563.98
Area unpatented.....	3,076,138.22
Area for which applications are pending.....	733,339.35

an increase of 334,920 tons over 1908. The foreign trade showed an increase of about 10 per cent. for the period. In Sweden the production of iron and steel for the six months ended June 30 was as follows: Pig iron, 289,900 metric tons; wrought iron, 61,200 tons; Bes-

Under the Reclamation law (act of June 17, 1902) the United States government builds irrigation works and sells rights to the water to be supplied for prices which will repay the cost of construction, the funds set aside for this purpose being the receipts from the sale

of public lands. The cost of water rights is to be paid by the water users in ten annual installments, without interest on deferred payments. The following statement, showing the condition of the reclamation fund, is taken from the report of the Secretary of the Interior for 1909:

CONDITION OF RECLAMATION FUND, JUNE 30, 1909.

Estimated total receipts to June 30, 1909.....	\$58,582,140.66
Net expenditures to June 30, 1909.....	45,757,918.94

The following statement regarding the progress of the works undertaken is compiled from the same report and from a statement supplied by the statistician of the United States Reclamation Service:

CONDITION OF UNITED STATES RECLAMATION PROJECTS

Computed total cost of all projects.....	\$119,555,000.00
Total area to be irrigated—acres.....	3,037,961.00
Cost per acre.....	\$39.35
Area of land for which water can be supplied—1909.....	767,958 acres.
Area actually irrigated, 1909.....	424,549 "

MEXICO. In Mexico all irrigation works are constructed by private parties. Statistics as to areas irrigated are not available. The law of June 17, 1908, provided for the creation of a bank for loaning money for the construction of irrigation works and for the promotion of agriculture, this bank to be organized by four of the leading banks of Mexico. The government of Mexico names three of the fifteen directors, the banks organizing the institution five, and the stockholders the remaining seven. Funds for loaning are to be secured by the issue of bonds guaranteed by the Mexican government, in a sum not exceeding \$50,000,000 (Mexican) or its equivalent in foreign money. This law has been in force so short a time that no statement of results can be made.

PERU. Irrigation works in Peru in general are built by private parties under government grants. The area irrigated was estimated in 1908 to be 126,000 acres, and the irrigable area 2,500,000 acres.

CHILE. Existing irrigation works in Chile have been built by private parties without government supervision. A commission appointed to consider this matter reported in 1908 in favor of a law providing for the issue of bonds to secure funds for the construction of irrigation works, the cost of the works to be repaid to the government and constitute a permanent revolving fund for the purpose. It proposed also the creation of a permanent National Office of Irrigation to control the streams of the country and grant rights to their use.

ARGENTINA. The area irrigated in 1908 was estimated at 1,800,000 acres, the works having been built principally by private parties. For several years there has been agitation for government construction, and in 1905 a law providing for it passed the Chamber of Deputies, but was defeated in the Senate. The latest proposal is for the construction of irrigation works by the railroad companies, to be paid for in government bonds issued for that purpose, the bonds to be paid off by charges for the water supplied.

BRAZIL. In 1904 Brazil began the construction of certain canals specifically authorized, and in 1905 (law of October 10, 1905) provided for coöperation between the Federal government and the States in the construction of other works. This is a direct contribution by the general government and there is no pro-

vision in the law for its repayment. In 1906 a commission was appointed to investigate the condition of works already built; to receive requests for the construction of other canals; to supply information regarding irrigation

practice and agricultural machinery; to make a general report regarding present and proposed irrigation works, with estimates of their cost and utility; and to determine what agency should provide for the construction of the new works proposed. There has been proposed also a code of water laws defining fully the status of rights to water and providing for their acquirement.

ITALY. Government aid to irrigation in Italy takes two forms: The direct construction of works, the water from which is disposed of under leases, usually to mutual companies, which distribute it to the members; and contributions to the cost of works built by associations organized for that purpose, the contribution consisting in the payment of a part of the interest on the cost of the works for a period of years, the total contribution amounting to 50 per cent. of the cost of the works. Further aid is granted in the form of loans from State banks, the conditions regarding security, repayment, and rates of interest being fixed by the government.

EGYPT. The government in Egypt controls the use of water from the Nile. It has repaired the ancient canals and built new canals and dams for the storage, diversion, and distribution of the water. The most notable of these works is the Assuan Dam, built for the purpose of storing a part of the flood waters of the Nile, the original purpose of this storage being not the reclaiming of new land, but the conversion of lands from basin irrigation to perennial irrigation, approximately doubling its value in this way. The area converted up to and including 1908 was about 352,000 acres, and the area to be converted in 1909 was about 53,000 acres, making the total area slightly over 400,000 acres. Land values due to this conversion are reported by the government engineers to have advanced from £E65 per feddan to £E135 per feddan (about \$320 to \$660 per acre). In 1907 it was decided to raise the Assuan Dam seven metres, increasing the storage capacity two and one-fourth times,



IRRIGATING YOUNG ALFALFA, USING THE CORRUGATION METHOD



**MAKING A ROCK-FILL DAM FOR AN IRRIGATION RESERVOIR. THE CONCRETE CORE WALL
IS SHOWN IN PROCESS OF CONSTRUCTION
IRRIGATION**

and providing for the irrigation of 1,000,000 acres of new lands. This work is now in progress, and it is estimated that it will require five years for its completion. The government gets its returns from the land revenue rather than from a direct charge for the water supplied.

RUSSIA. It is estimated that in European Russia there is an area of something over 25,000,000 acres which are uncultivated on account of lack of moisture. Most of this land is in the southern and southeastern parts of the country. In this section the government has built canals, principally for Crown lands, but it has also made loans for other works and encouraged the construction of irrigation works, furnishing technical assistance. Irrigation has not, however, had any great development in this part of Russia. In Turkestan large areas are irrigated by ancient canals, the crops being cereals, forage crops, raisins, and other fruits. The area actually irrigated in 1908 is estimated at about 5,000,000 acres. Since 1895 the Russian government has been building canals for the irrigation of Crown lands for the purpose of raising cotton. The extent of the Crown lands susceptible of irrigation is estimated at 1,500,000 acres, and adjoining areas which will be included in the government projects, bringing the total of these projects up to 2,000,000 acres. This government construction is now in progress. The Russian government is also building works for the irrigation of large areas along the Trans-Siberian Railway.

INDIA. India has a larger irrigated area than any other country in the world. The total irrigated area is about 44,000,000 acres, of which 18,500,000 is irrigated by government works, and 25,500,000 by private works. Most of the government works have been built by the British government, the returns being secured in some sections by direct charges for water, in some sections by increase in the land taxes, and in some instances by a combination of the two methods. The government further encourages irrigation development by making loans for the construction of private irrigation works, and by exempting from taxation the increased land values due to the construction of irrigation works for a sufficient length of time to enable the builder to recoup himself for the outlay. The government works are being extended constantly. They are divided into three classes: Productive works, which are expected to pay a net income above the cost of operation and interest on capital cost; protective works, which are intended primarily as a protection against famine and are not expected to pay as do the productive works, although they may do so; and minor works, for which no capital accounts have been kept, so that it is not possible to determine whether they pay a net profit.

AUSTRALIA. Some years ago the states of Australia provided for the creation of "water works trusts" for the building of irrigation works, with funds loaned by the government, but these have been failures, very generally, and the governments have written off or canceled many of the loans made to such trusts. In more recent years the states have been building irrigation works themselves and levying charges for the water supplied. These works have not been financial successes generally. In most sections it is possible to grow

crops or maintain live-stock without irrigation, and as a consequence large areas covered by canals are not watered and do not contribute to the support of the works. Proposed remedies are the purchase of the lands by the state, and their resale under agreements to pay for water, and the levying of charges for water on all land for which it is available, whether it is used or not.

There is considerable activity in the extension of irrigation in other countries. In the Northwest Territories of Canada the Canadian Pacific Railway Company is extending a large project as fast as the lands are settled, while private parties are also building works. In the British Colonies in South Africa, the government is building irrigation works, although the development is not large as yet. Taking the world as a whole, it is probable that there was never a time of greater activity in the construction of irrigation works than the present. See also **MESOPOTAMIA**.

ISTHMIAN CANAL ZONE. See **PANAMA CANAL**.

ITALIAN SOMALILAND. A protectorate of Italy, on the eastern coast of Africa, extending from British Somaliland south to the Juba River, which divides it from British East Africa. The estimated area is about 100,000 square miles, and the estimated population about 400,000. The Italian Somali territory comprises the Sultanate of the Mijertins, the Territory of the Nogal, the Sultanate of Obbia, and the Benadir Coast. The Abyssinian boundary was determined under a treaty of May 16, 1908. The inhabitants are engaged largely in pastoral pursuits, but the chief wealth of the country, which is little developed, is the forests of gum and incense-bearing trees. Along the Juba River some Italian companies are attempting cotton and tobacco culture. For 1908-9 the estimated revenue was 2,506,500 lire, of which 1,935,000 lire were a state subsidy; the estimated civil expenditure was 1,267,986 lire, and military 1,288,514. In December, 1907, Abyssinian tribes raided the Benadir hinterland and fighting resulted between them and the Italian troops, resulting in the killing of two Italian officers. On May 16, 1908, a convention was made between Italy and Abyssinia for the delimitation of the frontier by a line running from Dolo on the Juba River to the junction of the Juba and Dana Rivers, and thence to the Webi Shebeli, and thence to the Anglo-Abyssinian boundary. In March, 1909, successful operations against the Dervishes were reported by the Governor of Benadir, resulting in the capture of 2500 cattle, thirty prisoners, and guns and ammunition. Fighting was also reported on July 14 and 17, the tribesmen having tried to burn the settlement of Warsheikh. Their loss was reported at 45 killed and 20 wounded; the Italian loss at 5 of the Askaris and the Italian captain.

ITALY. A constitutional monarchy of southern Europe, including the Italian Peninsula, the islands of Sicily, Sardinia, and Elba, and about 66 minor islands. Capital, Rome.

AREA AND POPULATION. The area is variously stated: By the *Almanach de Gotha* at 286,682 square kilometres, or 110,690 square miles; by the Italian Survey Department at 110,659 square miles; and by a summing up of the areas of provinces and compartimenti

as ascertained, some by the Survey Department, others by the Military Geographical Institute and by the General Statistical Department, at 110,550 square miles. The population, according to the census of 1901, numbered 32,475,253; estimated, January 1, 1908, 33,909,776; January 1, 1909, 34,269,764. There is a large settled and floating foreign population. The movement of the population for three successive years is given as follows:

	Marriages	Births including stillborn	Deaths including stillborn
1906.....	260,771	1,119,131	745,028
1907.....	260,784	1,110,356	748,356
1908.....	282,932	1,190,167	821,500

The stillborn numbered in 1906, 48,153; 1907, 48,021; 1908, 51,465. The deaths for 1908 include 77,000 in the earthquake of December.

The emigrants numbered in 1907, 704,675 (to the United States, 285,731); 1908, 486,674 (United States, 128,503). For the first nine months of 1909 the emigration is given as 258,563 (United States, 222,537). The population of some of the principal cities according to the census of 1901 (revised) is given as follows: Rome, 440,254; Naples, 508,018; Milan, 491,460; Turin, 282,753; Palermo, 254,516; Genoa, 169,385; Florence, 158,526; Venice, 150,002.

EDUCATION. Two grades of elementary education are provided, both of which are free, the lower only (ages 6-9 in communes where no higher schools exist, 6-12 where there are such schools) being compulsory. The law of July, 1904, imposing special disabilities on the illiterate has afforded a needed stimulus, 49 per cent. of the population over 20 years of age being thus classed prior to that date. There has been great subsequent improvement. The number of public primary schools (exclusive of infant) numbered 53,259 in 1901-2, with 56,433 teachers and 2,548,583 pupils; private, 8518, with 9306 teachers and 184,766 pupils. There were (1905-6) 443 lyceums and gymnasia, with 48,031 pupils; 137 normal schools, with 21,739 students; 307 technical schools and institutes, 73,294; and 19 mercantile marine institutes, 2186. There are numerous special, professional, technical, and industrial schools and colleges, with increasing attendance. There are 17 state universities, and four free (Camerino, Ferrara, Perugia, Urbino), a total of 21 with an aggregate attendance (1907-8) of 23,297.

The Roman Catholic is nominally the state religion; but entire religious toleration prevails. The population was divided according to religions (1901) as follows: Roman Catholics, 31,539,863; Evangelical Protestants, 65,595; Jews,

35,617; Greek Church, 2472; other faiths, 338; non-professors, 36,092; not known, 795,276.

AGRICULTURE. Of the total area, 20,248,000 hectares (70.6 per cent.) are productive. The area under principal crops in hectares in 1907 and the yield for 1906 and 1907 in hectolitres (1 hectolitre=2.75 bushels, 22 gallons) are given as follows:

	Hectares	Yield 1906	Yield 1907
Wheat	5,230,000	62,185,000	62,566,000
Vines	3,768,000	29,784,000	53,903,000
Corn (1906)	1,817,000	32,776,000	31,162,000
Rice	151,000	9,244,000	10,450,000
Olive oil (1906) ..	1,101,000	1,113,000	2,857,000

In 1908 the wheat acreage was given as 12,355,200, with an average annual yield of 162,675,400 bushels. Italy has thus a wheat production of only 13.2 bushels to the acre, and resorts to imports for 25 per cent. of the annual supply. The acreage for 1909-10 is estimated at 20 per cent. above that of the previous year. Italy is second on the list of the world's wine producers, France being first. The yield in 1908 was 1,064,800,000 gallons, showing a reduction compared with 1907. (See LIQUORS, FERMENTED AND DISTILLED.) The olive crop for 1908-9 was in some sections a partial and in others a complete failure, and the total yield was far below the average. A crop not much above two-thirds normal is predicted for 1909-10. Tobacco was planted on 4893 hectares (1906), and yielded 6,713,833 kilos. The citrus fruits were estimated (1903) at 16,700,000 plants.

The average annual production of silk cocoons is estimated at 52,808,000 kilos, and of silk, at 5,610,000. In 1908 the live-stock returns were given as follows: Cattle, 6,190,990; horses, 955,031; mules, 371,926; donkeys, 16,435; asses, 848,988; sheep, 11,160,420; buffaloes, 19,362; goats, 2,714,513; swine, 2,503,733. The value of the forestry products in 1907 was given at 88,000,000 lire. The last official bulletin shows that in 1908 there were of forest area in Italy, under the direction of the Minister of Agriculture at Rome, 7,356,493 acres of wooded forests, 1,083,039 acres in "bush" forests, and 1,893,072 acres bare of trees. The Minister of Agriculture (Signor Cocco-Ortu) calls the woodland crisis a "fearful and dangerous one," and estimates that 8,650,000 acres would be needed to place Italy on a footing with other countries in the matter of forests. See FORESTRY.

MINING, MANUFACTURES, ETC. The total output of all mines for 1907 was valued at 87,939,440 lire (1 lire=19.3 cents). The most important, with production and value (1907), are given below:

Mines (active).	No.	Metric tons.	Lire
Sulphur	522	2,787,765	30,508,304
Zinc	132	680	70,000
Lead		43,037	8,447,516
Lead and zinc.....		160,517	19,161,552
Iron	39	517,952	9,085,007
Copper	39	167,619	5,140,239
Mineral fuel	42	453,137	4,208,262
Salt, graphite, petroleum	66		3,593,059
Asphaltic and bituminous substances.....	26	161,126	2,201,154
Iron and cupreous pyrites.....	12	126,925	2,128,450
Mercury	8	76,561	1,655,475
Boric acid	11	2,305	668,450

The amount of raw sulphur produced in 1908 was 443,720 tons. The total number of workers in active mines was 56,831. The number of workers in the stone quarries numbered 67,921; value of output, 50,319,746 lire. The lime and brick kilns employed 97,204 persons and had an output valued at 144,641,506 lire.

The silk industries employed (1903) 191,000 persons; the cotton and woolen industries, 178,000; hemp, etc., 26,000. The silk produced from domestic cocoons in 1908 was 4,486,000 kilos, against 4,820,000 in 1907; from foreign cocoons, 1,912,000 kilos, against 1,353,000 in 1907. The value of industrial chemical products (1907) was 123,522,000 lire. There were (1909) about 1200 flour mills (exclusive of small local mills). Rebates and bounties are provided by the government in encouragement of the flour-milling and semolina and paste-producing industries. The tobacco industry, a government monopoly for the past 25 years, produces nearly double the revenue arising from both other state monopolies—salt and the lottery. The number of metric tons manufactured in 1907-8 was 17,737, against 16,803 in 1906-7. The tobacco grown in Italy in 1907-8 was 6459 metric tons. The total amount paid by the government for foreign and home-grown tobacco in 1907-8 is stated at 30,735,731 lire; operating expenses, 33,546,560 lire; total, 64,282,290; total tobacco sales, 255,305,409 lire; net profits, 191,023,119 lire. The match industry showed a total production (1907-8) of 67,795,700,000 pieces. The tax on matches is collected by the sale of special revenue stamps to be attached to the boxes; the number sold in 1907-8, showing approximately the home consumption, numbered 669,300,558. The fisheries employed (December 31, 1906) 25,355 vessels of 73,903 tons, and 101,006 men. The value of the catch (1906) was 16,821,000 lire (tunny fish, 3,290,000 lire; coral, 510,000).

COMMERCE. The trade (special, transit, and precious metals) for 1907, 1908, and the first half of 1909 is given in lire as follows:

Imports:	1907	1908	1909 (1st §)
Special.	2,880,669,000	2,913,275,000	1,579,114,809
Precious metals.	168,144,000	28,052,000	4,139,099
Total	3,048,813,000	2,941,327,000	1,583,253,908
Exports:			
Special.	1,948,868,000	1,729,263,000	880,199,202
Precious metals	5,811,000	21,012,000	34,408,498
Total	1,954,679,000	1,750,275,000	914,607,700
Transit.	55,645,000	54,101,000	

The principal articles of import and export and their value in lire are given for 1908 as follows:

Imports	Lire
Cotton, raw	301,000,000
Silk.	270,000,000
Oil.	257,300,000
Machinery.	219,000,000
Cereals.	210,000,000
Iron.	138,700,000
Timber.	113,800,000
Chemical products	107,500,000
Skins	94,900,000
Wool	80,100,000
Fish	68,300,000
Brass, etc.	64,500,000
Implements	50,400,000
Woolen manufactures	48,800,000
Silk manufactures	42,900,000
Dyes	37,100,000
Cotton textiles	34,000,000

Exports	Lire
Silk	617,200,000
Cotton textiles	116,000,000
Silk goods	92,000,000
Skins	92,000,000
Chemical products	66,200,000
Olive oil	64,100,000
Hemp	51,400,000
Wooden manufactures, etc.	50,200,000
Cheese	44,400,000
Fruits	43,700,000
Wine	41,700,000
Eggs	40,000,000
Acid fruits	36,100,000
Almonds	30,600,000
Sulphur	29,400,000
Marble, etc.	28,200,000
Railway carriages	27,800,000

The articles of import which showed notable increase in 1909 were cotton-seed oil, cereals, tobacco, cotton, and lumber. The export articles showing considerable increase were silk, chemicals, preserves, hemp, wines and liquors, and crude tartar. Calcium citrate declined. Olive oil declined on account of the short crop; citrus fruits on account of the Messina earthquake. The imports and exports of salt in 1907 were 51,604 and 99,191 tons respectively; in 1908, 2610 and 85,489 tons. The value of the trade with important countries of origin and destination is given in lire (1908) as follows:

	Imports	Exports
Germany	521,000,000	245,400,000
Great Britain	500,900,000	131,900,000
United States	405,000,000	203,800,000
Austria-Hungary	300,700,000	144,900,000
France	276,300,000	203,800,000
Russia	127,700,000	11,800,000
British India	107,600,000	13,900,000

COMMUNICATIONS. The total length of railway lines in 1908 was 10,387 miles; state railways, 8380 miles. The total receipts in 1906-7 were 435,563,000 lire. There were (June 30, 1906) 31,000 miles of telegraph lines and 128,-

510 miles of wire; 7552 miles of telephone lines and 69,091 miles of wire. There were 9772 post-offices in 1907. Posts and telegraph receipts, 91,117,659 lire; expenditures, 71,100,807. The merchant marine, January 1, 1908, had 4874 sailing vessels of 468,674 tons, and 589 steamers of 526,586 tons. The total number of vessels entered in 1907 was 106,617 of 42,555,001 tons; cleared, 106,495 of 42,520,907.

FINANCE. The revenue and expenditure for three fiscal years are given in lire as follows:

	1905-6	1906-7	1907-8
Revenue.	2,562,152,714	2,256,039,988	2,320,597,699
Exp'd'ture	2,498,631,328	2,154,190,700	2,258,720,848

The budget for 1908-9 estimates the total revenue at 2,345,435,150 lire; expenditure, 2,289,-

459,895. The principal sources of revenue and items of expenditure are given below:

Revenue	Lire
Monopolies	948,715,259
Direct taxes	446,992,700
Taxes on transactions	276,200,000
Public services	154,481,900
Repayments	145,416,389
State properties	57,325,383
Special (virements)	54,618,049
Total ordinary	2,111,867,430
Extraordinary	233,567,720
Total	2,345,435,150
Expenditure	Lire
Treasury	704,585,306
Finance	300,350,916
War	287,492,658
Marine	154,822,031
Posts and Telegraphs	122,310,491
Interior	110,246,089
Public instruction	87,257,971
Justice, etc.	52,580,246
Public works	44,568,369
Agriculture, etc.	21,536,835
Foreign affairs	19,889,991
Total ordinary	1,905,640,883
Extraordinary	383,819,010
Total	2,289,459,895

The total public debt of Italy on July 1, 1909, stood at about 13,396,725,000 lire. Interest (including premiums) for the year ending June 30, 1908, was as follows: Consolidated debt, 374,027,752 lire; permanent annuity due to the Holy See, 3,225,000; various, 116,389,354; floating debt, 7,500,000; total 501,142,106.

NAVY. The larger vessels of the effective navy were as follows in 1909: First-class battleships: 2 of 13,426 tons each; 4 of 12,625 tons each;—second-class battleships; 2 of 9800 tons each; 3 of 13,298 tons each;—armored cruisers: 3 first-class of 7294 tons each; 2 first-class of 9832 tons each; one second-class of 4511 tons; 2 second-class of 6396 tons each. In 1909 there were building one first-class battleship of 19,000 tons and 2 first-class armored cruisers of 9832 tons each; and there were projected one first-class battleship of 19,000 tons and 2 first-class battleships of 21,000 tons each. The number and displacement of effective warships, built and building, of 1000 or more tons, and of torpedo craft of 50 or more tons, were as follows in 1909: Battleships of 10,000 tons and over, 11, aggregating 141,200 tons; armored cruisers, 10, of 78,720 tons; one cruiser of 3000 tons; cruisers between 3000 and 1000, 9, aggregating 19,320 tons; torpedo-boat destroyers, 21, of 7053 tons; torpedo boats, 63, of 8898 tons; submarines, 7, of 1087 tons; total, 122 war vessels, aggregating 259,278 tons. The naval expenditure of Italy during the ten-year period ending June 30, 1910, is stated at \$259,531,000.

The battleship *Roma* was finished and commissioned in 1909, but slow progress is being made on the Dreadnought, *Dante Alighieri*, and the press complained about the delay in carrying out the new building programme, especially in commencing the battleship "B," authorized in 1907. One and one-half years ago, at the end of August, because the *Giornale dei Lavori Pubblici* indiscreetly published the contents of the contract plan ahead of time, the Minister of Marine further deferred laying the matter of the proposals before the

state council. The new building programme included the battleship *Dante Alighieri*, now building at Castellamare, battleships (22,000 tons) "B," "S," and "D"; small cruisers (3300 tons) "S," "T," "U"; 12 destroyers (500 tons); 30 coastal torpedo boats of 120 tons; 11 submarines; and a floating dock for submarines. The annual manœuvres were held in September, with 34 ships, including 9 armored vessels, as well as a flotilla of submarines. The exercises were tactical; those of previous years had been strategical in connection with landing operations.

The publication in April, 1909, of the Austrian naval programme calling for the completion of three and possibly four new Dreadnoughts in 1912 indicated that Austria and Germany would soon have a strong naval base in the Mediterranean. Italy's standard of a naval power, twice as strong as that of any other country whose only coast was on the Mediterranean, was thereby threatened. The naval estimates of the Minister of Marine, Admiral Mirabeles, greatly increased the expenditure for the next six years. They called for four new battleships of the largest size (instead of two); three cruisers, many submarines and other small vessels, and a thorough system of coast defenses.

ARMY. Military service is compulsory and universal, the army being composed of an active or regular army, a mobile militia and a Territorial army. Service is for 19 years from the age of 20, and of this two or three (in the case of cavalry) years are spent with the colors, 6 or 5 years with the regular army reserve, 3 or 4 years with the mobile militia, and 7 years in the Territorial army. The quota of recruits each year is divided into 3 classes of which only the first go into the regular army, while the second receive military training but are on leave and the third, also exempted for various reasons, are assigned to the Territorial militia. In 1908 the reorganization law increased the liability to service as various causes, among these emigration, were cutting down the numbers of the yearly contingent available for the army and the nature of exemptions were decreased. It was desired to reduce the time of service with the colors to two years and in that event a still larger contingent would be demanded. The Italian army is under the direction of the Army Council created by decree of February 2, 1908. There are 12 army corps each comprising 2 divisions, except that of the military district of Rome which has 3. There were in the regular army, according to the scheme of organization taking effect October 1, 1909, 96 regiments (288 battalions) of infantry, 12 regiments (36 battalions) of Bersaglieri, and 8 regiments (26 battalions) of Alpine troops; 12 regiments of Lancers and 17 of cavalry; 24 regiments of field artillery with 186 6-gun batteries, 1 regiment (6 batteries) of horse artillery (4 guns only in time of peace); 2 regiments of mountain artillery, 3 regiments of fortress artillery; and 3 regiments and one brigade (in Sardinia) of coast artillery; 5 regiments of engineers and companies of other technical troops; 12 legions of *Carabinieri* or *Gendarmes* and 12 companies of sanitary troops and 12 supply companies. According to this organization the peace effective, all ranks, would be (exclusive of the troops in Africa) 13,942 officers and 274,107 men. For the year 1909-

1910 the effective present strength was fixed at 203,000 men. On a war footing the Italian army as arrayed in 1909 would include of the permanent army 39,254 officers and 247,457 men with the colors, on "unlimited leave" 488,487 men, the mobile militia 326,560, and the Territorial militia 2,274,737 or a grand total of 3,403,505. The fact that the Territorial militia are practically untrained destroys much of the effect of these figures. The Italian army on a war footing in 1909 had an effective strength of 3,403,505.

The army estimates showed a considerable increase; the Minister of War, General Spingardi, demanded 10,000,000 francs additional for the present year and 16,000,000 francs for the year following. The increase was explained in part by the increased price of equipment but also by the increase of the effective to 225,000. An extensive plan of fortification was estimated to cost 280,000,000 francs, which was to be distributed over a number of years. The law of military reorganization passed as a result of the reports of a recent Parliamentary Commission went into effect October 1.

GOVERNMENT. The executive authority is vested in the King, who acts through a responsible council of eleven ministers. The legislative power rests conjointly in the King and the Parliament. The latter is divided into a senate (318 members) and a representative chamber of deputies (508). The King in 1909 was Victor Emanuel III. (Vittorio Emanuele III.), born November 11, 1869; married, October 24, 1896, to Elena of Montenegro. The heir apparent is Prince Umberto, born September 15, 1904. The Ministry until December, 1909, was constituted as follows: President of the Council and Minister of the Interior, G. Giolitti; Foreign Affairs, T. Tittoni; Justice, etc., V. E. Orlando; Finance, P. Lacava; Treasury, P. Carcano; War, General Spingardi; Marine, Admiral Mirabello; Public Instruction, L. Rava; Public Works, P. Bertolini; Agriculture, etc., F. Cocco-Ortu; Posts and Telegraphs, Dr. C. Schanzer. For the Cabinet crisis and new Ministry of December 10, 1909, see closing paragraph on *History*.

HISTORY

PARLIAMENT. Early in the year an amnesty was granted by the King to special classes of criminal offenders, chiefly Socialists and labor leaders imprisoned for inciting strikers to violence and for interfering with the freedom of labor. On February 6 the Council of Ministers decided on dissolution. The general elections which were held on March 7 were very favorable to the Ministry. The constitution of the Chamber which met on March 23 was, as a result of the elections: Extreme Left (Socialists, 43; Radicals, 37; Republicans, 23), 103; Constitutional Opposition, 43; Catholics, 16; Ministerialists, 346. The matters before Parliament may here be briefly summarized, and the chief topics will be discussed in succeeding paragraphs. Considerable additions were accepted by Parliament in both the army and navy estimates. Among other measures discussed were a motion to reduce or abolish grain duties, which was defeated, and bills for the payment of the members of Parliament. On the latter subject Premier Giolitti said that the idea of paying members was gaining in favor and that the government would not oppose it. An at-

tack was made on the government's ecclesiastical policy but without result. There was sharp criticism in the Chamber, during the discussion of the budget of the Minister of Public Works of the measures which the government had taken for relief after the earthquake. The government ship subsidy policy aroused violent opposition in July, but the question was deferred to the end of the year. This was the main issue in the autumn general elections. The Chamber reassembled November 18, and the Giolitti Ministry soon afterwards resigned, being defeated on the question of tax reform, and not as had been expected on the Marine Conventions against which the Opposition had been hitherto concentrated.

EARTHQUAKE RELIEF MEASURES. On December 28, 1908, occurred the most disastrous earthquake that ever visited a civilized country. The chief havoc was wrought in the strip of land bordering the Straits of Messina wherein are situated the two large cities of Messina with about 160,000 inhabitants and Reggio with about 60,000 (commune), and from this centre the devastation spread over an area of some 4500 square miles. Both Messina and Reggio were utterly ruined and over forty communities in Calabria and Sicily were destroyed. The estimates of the loss of life varied greatly. Official estimates placed it at 125,000, while other estimates ranged from 50,000 to 100,000. Rescue work was immediately undertaken by the foreign vessels in Sicilian waters and good service was rendered by the men of the American, British and Russian war ships, which were dispatched promptly to the scene of the disaster. Foreign nations also contributed generously in money for the relief of the destitute, the United States Congress voting an appropriation of \$800,000 and a still larger sum being contributed by the American Red Cross Society (see **EARTHQUAKES**).

Parliament passed an act in January providing funds for the work of restoration in the regions visited by the earthquake. For the reconstruction of the national buildings and public works money was obtained from the balance remaining from the budget of 1907-8. The funds for the needs of the provinces and local divisions were raised by a surtax of two per cent. for five years on certain classes of the direct taxes and stamp duties, and for private needs the government promised to pay half the yearly interest and half the annual installment on loans to run for thirty years which it would secure for any person desiring to rebuild. It furthermore paid an insurance to the loaning companies and for fifteen years exempted the borrower from all national and local taxation. In April the King and Queen visited the stricken areas for the second time and the former expressed his approval of the progress made. A number of earthquake shocks occurred in Calabria and Sicily, including one of considerable severity at Messina on July 1, which caused a panic among the inhabitants. A serious riot occurred at Sinopoli in Calabria in May on account of the non-distribution of relief funds, and six persons were killed and many wounded. The government was sharply criticised for dilatoriness and inefficiency in the work of relief. The subject came up in the Chamber during the discussion of the budget of the Ministry of Public Works. On its own behalf the government declared that its work had been hindered

by the damage done by the railways and by the character of the soil and the attitude of the people in Calabria. The relief measures were slowly executed and there was much complaint of a lack of initiative and of a tendency to wait for orders, no matter how urgent and distressing the situation. The red tape and officialism of a bureaucratic administration, especially in the navy, were severely blamed. The correspondents for British newspapers were particularly censorious. Slight progress was made in housing the people of Messina during the summer. It was charged that the work of restoration was even retarded by the officials, that the American plan of building wooden houses had been checked again and again, and that wood for these houses supplied from England was allowed to float for an indefinite period in the Reggio harbor, also that the water supply did not improve. On the other hand, conditions at Reggio were somewhat better and during the summer were improving. See the articles on EARTHQUAKES and on UNITED STATES, paragraph on Congress.

GROWTH OF THE MONASTERIES. The government's policy toward the Church was criticised and on May 31 Signor Chiesa introduced a resolution against the monasteries. As a result of the government's let-alone policy, whereby Catholics enjoyed all the rights granted to individual Italians, there was evidence of growing strength on the part of the monasteries, convents and other church institutions. Signor Chiesa presented figures which indicated a surprising increase. According to these the number of monasteries and convents rose from 951 and 2605 respectively in 1901 to 1203 and 2658 in 1909; and the monastic and conventual schools from 1342 to 2035 with an enrollment of 150,000. The Chamber, however, was unwilling to appear in the light of a persecutor of the Church and the resolution was lost by a majority of 116.

THE SHIP SUBSIDIES. The question of the ship subsidies reached a critical stage just before the adjournment of Parliament on July 12. In the ship subsidies bill introduced by the government an agreement was made with the Italian Lloyd which granted the company certain privileges at variance with the law of April 5, 1908, fixing the conditions of these contracts. For one thing it allowed the company a preliminary period of five years before the amount of the subsidy was fixed for the next twenty. This was attacked by Baron Sonnino of the Opposition as inviting extravagance on the company's part during these first five years in order to secure a larger subvention. Other serious defects in the plan were pointed out. The bill was condemned for conferring on the Lloyd a virtual monopoly, and the government was criticised for not asking Parliament to amend the law of 1908, which in some respects was illiberal, instead of bringing in a bill which covered a private arrangement with the company at variance with that law. The law of 1908 provided for competitive bids and this also was disregarded. Finally the government declared its willingness to place the contract at public auction and asked the Chamber to suspend discussion of the bill. To this the Chamber agreed, and the question was thus deferred to the close of the year.

THE NEW MINISTRY. The weakness of the Giolitti Ministry was manifest on the eve of adjournment (July 12) in the course of the ship subsidy debate. It fell soon after the

meeting of Parliament on November 18, but contrary to expectation the immediate occasion of its overthrow was not the ship subsidy question but a question arising from a tax reform proposal. The new Premier was Baron Sonnino, who had led the attack on the ship subsidy bill in July. General Spingardi, Minister of War, and two other members of the Giolitti Cabinet were retained in the new Ministry. Its composition was announced on December 10 as follows:

President of the Council and Minister of the Interior, Baron Sonnino; Minister for Foreign Affairs, Count Guicciardini; Marine, Admiral Bettolo; War, General Spingardi; Worship and Justice, Signor Scialoja; Agriculture, Signor Luzzatti; Education, Signor Daneo; Treasury, Signor Salandra; Finance, Signor Ariotta; Public Works, Signor Rubini; Posts and Telegraphs, Signor di Sant'Onorio.

OTHER EVENTS. Important archaeological discoveries were made at Rome in February, including finds of statues of Jupiter, Bacchus, Chronos and an Egyptian deity. (See ARCHAEOLOGY.) The Keats-Shelley Memorial was inaugurated on April 5. The house in which Keats died in Rome had been bought by money raised in England and America and turned into a museum and library which it was hoped would serve as a sort of centre for English, Italian and American literature and preserve in good order the tombs of Keats and Shelley. The King attended the ceremonies. In April the beatification of Joan of Arc was solemnized at St. Peter's. On May 17 the Sixth International Cotton Congress was opened at Milan. The fiftieth anniversary of Lombard liberation was celebrated at several cities. The battle of Magenta, which occurred on June 4, 1859, was commemorated at Magenta on June 4.

A feature of the celebration was the presence of the French representatives. The fiftieth anniversary of Solferino was celebrated at San Martino on June 24, the King and Queen participating, and at Genoa a stone was laid to commemorate the departure of the French troops. There were also festivities at Turin, Florence and Rome as well as in France to commemorate the anniversary of Lombard liberation. An important movement had been gaining strength in Italy for some time past, which aimed at turning Italian emigration to Italy's advantage by making the Italian labor supply a basis for demanding commercial concessions from the country of destination. It also contemplated measures for preventing emigrants from giving up their Italian nationality. Signor Tittoni spoke on this subject, but steered clear of visionary proposals. He promised better subsidies for Italian schools in the United States and South America. The Dante Alighieri Society was in sympathy with this programme. The most important meeting in the history of this society was held at Brescia in October. Its membership within a comparatively short time had risen from three thousand to fifty thousand. Its chief objects were to foster the Italian language, promote Italian unity, and prevent Italian emigrants from giving up their nationality. In April the King and Queen of Italy received the King and Queen of England at Baia, and on May 12 the King met the German Emperor at Brindisi. On October 23, the Czar, whose visit to Italy had been widely heralded, arrived at Racconigi. There had been



Copyright by Keystone View Company

PRINCE HIROBUMI ITO
AT HIS SEASIDE VILLA, OISO, JAPAN

much talk among the Socialists of demonstrations against this visit and the Chambers of Labor had planned a general strike, but in view of the general opposition to these plans they were given up. The visit was regarded as of great international importance. The usual expressions of friendship were interchanged and gratitude was expressed in the King's speech for Russian aid after the earthquake. It was hailed in France as a sign of *rapprochement* between Russia and Italy in spite of the Triple Alliance. See ROMAN CATHOLIC CHURCH.

ITO (HIROBUMI) Prince. A Japanese statesman, assassinated by a Korean, October 26, 1909. He was born in 1841, the son of a small man of the Samurai or feudal fighting class in the town of Shimonoseki in the Province of Chosu. At his birth he was given the name Shunsuke (superior being), but later in life he dropped this and assumed the name Hirobumi, which is freely translated, "Benevolent Literature." He was left an orphan early in life and was adopted by relatives. His early years were devoted to learning the arts of war and in perfecting himself in the discipline of his class. During his youth, the Lord of Chosu, his master, became restive under the tyranny of the Shogun and rebelled against him, and Ito was sent to Tokio to obtain secret information. While in Tokio he caught a glimpse of the great world beyond Japan, and on his return with four companions conceived the idea of escaping from Japan and going to England. At the time a Scotch whaler was anchored in the Strait of Shimonoseki, and in the darkness one night the five boys swam out and boarded her. The captain of the vessel was finally persuaded to take them with him and Ito and the others worked their way on shipboard until they arrived in England. The stay here was short, however, for in 1863 the Lord of Chosu fortified the Strait of Shimonoseki against foreigners and even fired on two United States sloops of war and French and Dutch vessels. Ito, hearing this, hastened home in an effort to forestall the combined movement of foreign warships against his lord. His counsels, however, did not prevail and the foreign fleet arrived and bombarded and leveled the forts. The rebellion which seated the present Emperor on the throne began shortly after this, and Ito, because of his escapade in England and his attempts to dissuade the Lord of the Province against fighting the Westerners, fell under the suspicion of his own people. He, with Inouye, who had accompanied him to England, were attacked by assassins and Ito was saved only by the strategy of a girl who hid him safely. This girl later became his wife. He did not play any great part in the War of the Rebellion, but he emerged as one of the young progressists, whose whole soul was devoted to the Emperor and the cause of an enlightened Japan. He was made first governor of the port of Kobé when, at the demands of the Powers, the ports of Japan were thrown open to foreign commerce. In the following year he was transferred to Tokio as Vice-Minister of Public Works. In 1872 he became a member of an embassy headed by Iwakura, a noble of high rank, which made a two years' circuit of the great Powers in an effort to gain a modification of the earlier treaties. During the progress of this embassy Ito visited the United States for the first time. He played the foremost part in the eventful years which followed

during which Japan was endeavoring to adjust herself and adapt herself to Western civilization. He had the chief part in formulating the constitution under which Japan is now governed. He was prominent also in following up the new country's industrial system and took an active part in the rudimentary beginnings of an army and navy. In 1883 when Prince Sanjo resigned the premiership of the empire, Ito, who had been made a count because of his services the year previous in drawing up the Tientsin agreement with Li Hung Chang, was given the post. He was then 44 years old. He at once became one of the close circle of "elder statesmen," the unofficial body that stands above all constitutional provisions next to the Emperor as an advisory board. He resigned the premiership to fill the chair of president of the newly created House of Peers. In this position he had many important tasks to perform. He met Li Hung Chang as a peace envoy at the close of the short war with China, and at Shimonoseki signed the famous peace which contained the elements of the future greater war with Russia. During the next ten years, Ito, now made a marquis, played an important part in all governmental affairs. His efforts were directed towards strengthening the resources of the empire for the war with Russia, which undoubtedly he foresaw. When the war broke out, from his place near the throne he helped to keep the fortunes of Japan in the ascendant and to strengthen the sympathy for his country among Anglo-Saxons. When the peace of Portsmouth was signed, Prince Ito suffered the popular contumely which included all the officers of the government. His statute in Kobé was torn from its pedestal and his name was generally execrated. He was unmoved by this clamor, however, and in 1895 was given the task of making Korea a Japanese province. He compelled the Korean Emperor to sign away the sovereign rights of the ancient land, and placed on the throne a ruler of his own choosing. Through his masterly efforts the administration of the country was reformed and great progress was made in all social and political branches. Although he was bitterly hated by the Koreans, it is certain that he at no time used arbitrary or unduly harsh measures. In 1907 the title of Prince was bestowed upon him and he resigned the office of Resident-General in May, 1909, to succeed the late Field Marshal, Yamagata, as president of the Privy Council. In August he visited Seoul and received, according to Japanese reports, a cordial welcome. He was assassinated at Harbin, Manchuria, where he had gone for the purpose of holding a conference with M. Kokovsoff, the Russian Minister of Finance, in regard to the general railway situation in Manchuria. Three other persons of his party were badly wounded by the assassin. He claimed to have committed the crime simply from patriotic motives without any personal animosity for the victims. See JAPAN.

IVORY COAST, THE. A French colony in French West Africa (q. v.). Area, 125,538 square miles; population (1906), 889,479. It includes the protected native kingdom of Kong. The capital is Bingerville (formerly called Adjamé). The principal settlements are Grand Bassam and Assinie. Corn, coffee, rubber, fruits, and mahogany are produced. Gold output (1906) 4225 grammes, valued at 11,832 francs. Imports (1907), 14,314,000 francs; ex-

ports, 10,911,000 francs. Railway line open (1908) 51 miles; under construction, 107 miles. Telegraph and telephone connection exists with adjoining colonies. In 1907 there were 36 post-offices. In 1906, 1081 vessels, of 1,776,982 tons, entered, and 1087, of 1,780,267 tons, cleared, at the ports. The sum of 10,000,000 francs has been assigned from the colonial loan for railway construction and harbor improvement. The local budget balanced (1904) at 3,368,800 francs. A lieutenant-governor administers the colony under the direction of the Governor-General of French West Africa.

JACKSON, SHELDON. An American clergyman and educator, died May 1, 1909. He was born in Minaville, N. Y., in 1834, and after graduating from Union College in 1855 and from the Princeton Theological Seminary in 1858, was ordained a Presbyterian clergyman. From 1858 to 1869 he acted as missionary to Indians in the West, at the same time acting as pastor at La Crescent, Minn. He made a special study of conditions in Alaska for over 30 years, and from 1885 to the time of his death, held the position of general agent of education in Alaska. Dr. Jackson introduced the public school system into that Territory and was unremitting in his efforts to improve the physical, intellectual and moral condition of the people. In addition his interests in other matters were large, and he was associated in many religious and philanthropic movements. Among other works he wrote *Education in Alaska* (1872); *Handbook on Alaska*; *Alaska and Missions on the North Pacific Coast* (1880), and many reports for the government.

JAIME, Don. Pretender to the Spanish throne. See **CARLOS**.

JAMAICA. An island of the West Indies, constituting, with a number of smaller islands, a British colony. Area, 4207 square miles. Population (census of 1891), 639,491 (whites, 14,692; mixed, 121,955; black, 488,624; East Indian, 10,116; Chinese, 481); estimated (1908), 835,800. Capital, Kingston, with 46,542 inhabitants. There were (1907-8) 683 public elementary schools, with an enrollment of 88,854, and an average attendance of 53,809. There are secondary, high, and industrial schools, and four government training schools. Of the 873,029 acres under cultivation in 1907, 62,164 were under bananas, 31,178 under sugarcane, 25,547 under coffee, 10,537 under cocoanuts. Guinea grass covered 139,783, ordinary pasture 399,473, pasture and pimento 84,523. The total imports and exports in 1908-9 were valued at £2,420,335 and £2,268,253, respectively, against £2,914,013 and £2,376,202 in 1907-8. There are 184½ miles of railway, 889 of telegraph, 430 of telephone lines. The revenue and expenditure for 1908-9 are given at £1,075,389 and £1,061,496 (expenditure from income, £1,052,101, from loans £9395), respectively, against £1,021,937 and £938,204 (expenditure from income £935,384, from loans £2820), in 1907-8. The island with its dependencies (Turks and Caicos Islands, Cayman Islands [qq. v.], Morant Cays, and Pedro Cays), is administered by a governor (1909, Sir Sidney Olivier), assisted by a privy council and a legislative council.

A committee consisting of two experts sent out in 1908 to investigate the distribution of malaria and of certain cattle pests, including ticks, made its report containing certain specific

recommendations which were likely to improve conditions. The tick pest was reported as so widespread as to render the country useless for grazing purposes. By the beginning of June the rebuilding of the commercial centre of Kingston was practically restored, and the Governor expressed satisfaction at the rapidity with which the work had been carried out. During the first week in November, floods caused by heavy rains did much damage to crops, roads and bridges and inflicted a loss of life estimated at twenty.

JANNARIS, ANTHONY. A Cretan scholar and public official, died April 26, 1909. He was born in Crete in 1852. From 1883 to 1885 he was head master of the public gymnasium of Canea. In 1889 he was appointed lecturer in Greek literature in the University of Athens, but resigned this position to take part in the Cretan insurrection, which broke out in the same year. For participation in this he was proscribed by the Sultan of Turkey, and fled to London. Here he remained for six years, devoting the time to the study of Greek literature and language. He returned to Crete and was elected a member of the Cretan Assembly. He acted as correspondent of the *London Times* during the troubles of 1897. In 1907 he was appointed inspector-general of public education in Crete. He wrote numerous books and reviews, and compiled grammars and dictionaries of the Greek language. His stories of Cretan folklore are valuable.

JAPAN. A constitutional empire consisting of Honshiu, Kiushiu, Shikoku, Hokkaido, and many smaller islands off the eastern coast of Asia; together with Formosa (q. v.), the southern half of Sakhalin, the protectorate of Korea (q. v.), and the leasehold of Kwantung. The capital is Tokio.

AREA AND POPULATION. The area of Japan proper is 147,651 square miles (Honshiu, 87,485 square miles). The population (including Japanese abroad), according to the census of 1903, was 46,732,876; estimated in 1909, 49,769,704 (Honshiu, 35,460,542). On December 31, 1907, foreigners numbered 19,094, of whom 12,291 were Chinese, 2320 British, and 1647 Americans. In 1906 there were 353,274 marriages, 1,399,203 births (8.2 per cent. illegitimate), and 961,550 deaths. The larger cities, with population in 1903, are: Tokio, 1,818,655; Osaka, 995,945; Kioto, 380,568; Yokohama, 326,035; Nagoya, 288,639; Kobe, 285,002; Nagasaki, 153,293.

EDUCATION. Elementary instruction is compulsory. In 1907 there were 27,269 elementary schools, with 116,070 teachers and 5,514,735 pupils; 282 middle schools, with 5418 teachers and 109,070 pupils; 70 normal schools, with 1282 teachers and 20,268 students; 4616 special and technical schools, with 7450 teachers and 255,310 students; and various other educational institutions, including the Imperial universities at Tokio, Kioto, and Tohoku, with 512 teachers and 7400 students. Religious freedom prevails.

AGRICULTURE. About six-tenths of the population are classed as being engaged in agriculture, but, owing to the mountainous character of the country, only about one-sixth of the total area is under cultivation. The reported area under cultivation at the end of 1907 was 5,256,440 cho; under forest, 7,321,417 cho; open field, 1,204,170 cho (one cho=2.45072 acres).

The area under cultivation reported at the end of 1908 was 5,436,655 cho, some of the important crop areas being as follows: Rice, 2,922,973 cho; wheat, 1,782,401; beans, 648,064; millet, 295,760; sweet potatoes, 288,792. Although rice is the leading crop, the annual production is about 2,000,000 koku short of the home consumption (one koku=about 5.11 Winchester bushels); and Japan's population is increasing rapidly. The needs of the country

14,157,786; matches, 15,516,980; earthenware, 13,385,982; lacquered ware, 6,809,605; matting, 10,178,379; leather, 10,882,984; oil, 11,613,683. In 1908 the production of paper amounted to 260,000,000 pounds. In the shipbuilding industry, 191 vessels aggregating 79,258 tons were constructed in 1908 (against 127,752 tons in 1907).

COMMERCE. Import and export values have been in yen as follows:

Exports	1906	1907	1908
Merchandise	418,784,108	494,467,346	436,257,462
Precious metals	47,211,197	8,256,503	17,544,486
Total	465,995,305	502,723,849	453,801,948
<hr/>			
Imports	1906	1907	1908
Merchandise	423,754,892	432,412,873	378,245,673
Precious metals	25,784,436	18,769,285	8,772,502
Total	449,539,328	451,172,158	382,018,175

are recognized in an effort to increase production, and the rice crop of 1909, estimated at 54,712,051 koku, was the largest on record. The crop of 1908 amounted to 51,932,831 koku; that of 1907, 49,052,065 koku; and the average for the eleven years ending 1909 was 46,286,135 koku. In 1907 the reported wheat yield was about 22,168,000 bushels; in 1908, 21,435,000; the estimate for 1909 was about 20,637,000 bushels. In 1906 the output of raw sugar was reported at 84,787,497 kwan (one kwan=8.2817 pounds); the reported production of refined sugar in 1907 was 138,835,490 catties. (See SUGAR.) Tea production in 1906 was 7,060,079 kwan and in 1907 7,367,985 kwan. Other important crops are barley, buckwheat, and fruits. The production of silk cocoons in 1906 was 2,970,727 kwan and in 1907 3,456,967 kwan; of raw silk, 2,917,509 kwan and 3,236,692 kwan, respectively. The reported number of live-stock in 1906 was: Horses, 1,465,466; cattle, 1,190,373; swine, 284,708; goats, 74,750; sheep, 3501. See AGRICULTURE.

MINING. The value of the mineral output in 1908 was \$51,583,000, as compared with \$53,412,800 in 1907. The more important minerals raised in 1908 were valued as follows: Coal, \$30,981,700; copper, \$11,201,900; petroleum, \$3,237,700; silver, \$2,132,800; gold, \$2,073,000; iron, \$963,500; sulphur, \$383,400.

FISHERIES. About one-tenth of the population are dependent upon the fisheries. In 1906 the catch was valued at \$27,227,574; other sea products, as fish oil, fish manure, etc., \$16,704,554; seals and sea otters, \$12,450,000; total, \$56,382,128. A considerable whaling industry has developed since the Russo-Japanese war.

MANUFACTURES. In recent years there has been a large development in manufactures, especially textiles and iron and steel. On March 1, 1909, the estimated number of cotton spindles in operation was 1,695,879, and in construction 258,452. The mill consumption of cotton during 1908 was 878,178 bales. The values of the woven piece goods manufactured in 1906 were: Silk, 70,582,317 yen; mixed silk and cotton, 17,472,498; cotton, 79,751,250; hemp, 2,641,870; besides sashes, and other articles, making a total of 210,355,661 yen. The values of other manufactures in 1906 included: Japanese paper, 15,103,359 yen; European paper,

In 1907 and 1908, 62.2 per cent. and 64.3 per cent. respectively, of the imports were dutiable, the average rate of duty being 15.28 per cent. in the former year and 15.93 per cent. in the latter. Foreign commerce in most countries showed a falling off in 1908, as compared with 1907, and the decline in Japan was very marked. This is seen especially in the trade with Asia, the imports showing a decline of nearly 32,000,000 yen, and the exports of about 34,500,000 yen. As the imports from Asia consist largely of raw material, a decline in them indicates manufacturing depression, which in considerable degree accounts for the diminished exports. The decline in wool, raw silk, cotton yarn, and copper account for about 60 per cent. of the export shrinkage. One of the unfortunate features of the 1908 foreign trade was the fact that, while the prices of imports declined only slightly, there was a heavy fall in the prices of exports; this was especially notable in raw silk exports, the price of which was about 30 per cent. less than in 1907. That business conditions in 1908 were unfavorable is seen also in the movements of gold and silver; in 1907 the precious metal exports exceeded the imports by 10,502,782 yen, and in 1908 the imports exceeded the exports by 13,771,984 yen; the importation being required to compensate for restricted credit. The values of the principal imports in 1908 were as follows, the figures in parenthesis indicating values for 1907: Raw cotton, 90,256,289 yen (115,641,599); oil cake, 24,480,195 (21,042,122); rice, 22,688,539 (30,931,058); iron manufactures, 20,327,000 (20,910,000); sugar, 19,604,038 (19,864,956); cotton goods, 16,675,000 (15,540,000); kerosene, 15,105,200 (14,324,800); iron, 10,970,000 (14,047,000); soya beans, 10,930,671 (9,584,322); ammonium sulphate, 8,796,790 (8,227,472); woolen tissues, 8,564,077 (12,304,887); spinning machines and parts, 7,331,209 (3,842,483); wool, 6,850,177 (14,353,457); paper, 6,379,530; indigo, 5,420,604 (5,876,705); wheat and wheat flour, 5,338,923 (9,881,515); rails, 5,071,446 (3,828,502); locomotives and cars, 3,683,923 (2,933,731).

The leading export values in 1908 were: Raw silk, 108,609,052 yen (116,888,627 in 1907); silk goods, 32,201,057 (34,646,757); copper (ingot and slab), 21,255,013 (29,262,693); cot-

ton yarn, 20,723,904 (30,342,913); coal, 18,233,980 (19,052,886); cotton tissues, 14,611,374 (16,344,097); tea, 11,153,379 (12,618,244); matches, 9,468,602 (9,446,532); timber, 8,822,497 (13,334,811); waste silk, 7,872,465 (6,243,305); mats and matting, 5,765,053 (5,746,279); porcelain and earthenware, 5,078,222 (7,216,034); paper and paper manufactures, 4,783,671 (5,294,397); rice, 3,910,243 (3,664,344); refined sugar, 3,454,150 (2,591,667); saké, 3,329,262 (3,338,586); ships, 3,271,475 (4,404,310); straw braids, 3,179,890 (3,905,538); cotton underclothes, 3,105,796 (3,709,928); camphor, 2,063,410 (5,026,858). Imports and exports of merchandise by countries were valued in 1907 and 1908 as follows, in thousands of yen:

Countries	Imports		Exports	
	1907	1908	1907	1908
Great Britain.....	116,245	107,796	22,443	25,522
Germany	47,668	46,179	11,256	7,976
France	7,025	5,246	42,533	33,746
Other Europe.....	24,275	16,502	18,134	16,748
United States.....	80,697	77,637	131,101	121,997
British India.....	74,593	49,328	13,088	13,632
China	67,992	63,784	106,020	77,746
Dutch East Indies.	22,039	23,965	2,261	2,123
Korea	16,372	13,718	32,792	30,273
French Indo-China.	8,663	8,484	250	365
Hongkong	821	1,116	24,385	18,539
Other Asia.....	9,616	9,876	12,971	14,723
Other countries...	18,461	14,576	15,179	14,856
Total	494,467	436,257	432,413	378,246

During 1909 business conditions did not make a satisfactory recovery, although export values gained the ascendancy over import. The continuance in 1909 of the industrial and commercial depression which followed the American panic of October, 1907, was ascribed to various causes, including alleged mismanagement of the government finances, but the widespread lack of confidence was due in large measure to the exposure of dishonest practices on the part of various corporations, especially the Japan Sugar Refining Company. According to preliminary returns, imports and exports of merchandise in 1909 amounted in value to 392,646,000 yen, and 412,145,000 yen, respectively.

SHIPPING. In 1907 there entered the ports of Japan 6734 Japanese steamers, of 8,770,491 tons, and cleared 6703, of 8,756,448 tons; 2762 Japanese sailing vessels and junks, of 96,945 tons, and cleared 2771, of 97,456 tons; 4231 foreign steamers, of 11,429,162 tons, and cleared 4131 of 11,210,349 tons; and 104 foreign sailing vessels, of 40,097 tons, and cleared 97, of 38,588 tons; total: entered 13,831 vessels, of 20,336,695 tons, and cleared 13,702, of 20,102,841 tons. In 1908 there entered 13,029 vessels, of 20,310,577 tons, of which 7408 vessels (8,705,776 tons) were Japanese, 2267 (6,409,122 tons) British, and 660 (1,847,957) German. On January 1, 1909, the merchant marine consisted of 2295 steamers, of 1,160,372 tons, and 5333 sailing vessels, of 383,455 tons. In addition there were 21,460 native craft. The principal ports are Kobe, Moji, Yokohama, and Nagasaki.

COMMUNICATIONS. On March 31, 1908, there were open to traffic 4628 miles of railway, of which 4182 miles were government lines and 446 miles private; in addition there were 271 miles of government railway in Formosa; total, 4299 miles. During the year ending on the above date, the government extended its mileage by 91 miles, besides taking over (by purchase)

1246 miles of private line. During the year the government lines carried 101,115,739 passengers, and 18,312,223 tons of goods, and the private lines 39,890,322 passengers and 5,203,383 tons. The government is carrying out a plan for extensive railway improvement and construction. On March 31, 1908, there were 17,601 miles of telegraph line (90,410 miles of wire) and 3853 miles of submarine cable; the post-offices numbered 7261.

NAVY. In 1909 the larger vessels of the effective navy were: First-class battleships: One of 12,320 tons; two of 12,674 tons each; one of 12,700 tons; one of 13,516 tons; one of 14,850 tons; two of 15,200 tons each; one of 15,950 tons; one of 16,400 tons; one of 19,210 tons;—One second-class battleship of 10,960 tons;—armored cruisers: One of 7299 tons; one of 7700 tons; one of 7726 tons; one of 9436 tons; two of 9700 tons each; two of 9750 tons each; one of 9850 tons; two of 13,750 tons each; two of 14,600 tons each (the *Kurama* and *Ibuki*, completed in 1909). In 1909 there were three first-class battleships building, one of 19,800 tons and two of 21,000 tons each; and two armored cruisers of 18,700 tons each were projected. On December 1, 1909, the number and displacement of effective war ships, built and building, of 1000 or more tons, and of torpedo craft of 50 or more tons, were as follows: Battleships of 10,000 tons and over, fifteen, of 233,454 tons; coast defense vessels, three, of 18,786 tons; armored cruisers, thirteen, of 137,611 tons; cruisers over 6000 tons, two, of 13,130 tons; cruisers 6000 to 3000 tons, eleven, of 44,580 tons; cruisers 3000 to 1000 tons, seven, of 14,558 tons; torpedo-boat destroyers, fifty-nine, of 22,768 tons; torpedo boats, sixty-nine, of 6332 tons; submarines, twelve of 2152 tons; total, 191 war vessels, aggregating 493,371 tons. For the four-year period ending March 31, 1910, the naval expenditure of Japan is placed at \$133,807,000.

The battleship *Satsuma*, completed during 1909, was originally designed for 19,350 tons, as a vessel of an improved *Lord Nelson* type. After her launching in 1907, the first *Dreadnought* appeared in England, and the *Satsuma*'s original plans were then changed, to make her an improved *Dreadnought*; she also had special features, suggested by experience in war. The original plans of the *Aki*, designed as a sister ship to the *Satsuma*, and launched in 1908, were greatly altered; and she was believed to be more powerful even than the *Satsuma*. The armored cruisers *Ibuki* and *Kurama*, launched in 1908, were designed as copies of the *Black Prince* type of the British Navy; but the building of the *Invincible* caused great changes to be made in their plans, about which nothing was published during 1909. The *Ibuki* had her trials; the *Kurama* was announced to be ready in the following spring. Financial difficulties affected the progress of naval construction during 1909.

The intention was also announced of building three protected 4800 ton cruisers, to take the place of the small cruisers of the *Tatsuta* type as scouts and repeating ships, as these vessels did not meet requirements in the last war. The new ships were to be built by the Mitsubishi Co., Nagasaki, the Kawasaki Co., Kobe and the Navy Yard, Sasebo. The first was to be fitted with Parsons's turbines; the two others, with the Curtis turbine.

The increased tonnage of ships, with which destroyers had to keep pace, on one hand, and also the experience gained in war led to the adoption of a type of destroyers of 1150 tons, turbines of 20,500 horse-power, and 33 knots speed. War experience proved that the present type in service, of 374 tons, 7400 horse-power, and 31.5 knots speed, could not, in bad weather, overtake a fleeing enemy, or attack with security. Besides this, the small cruisers used as flotilla guides up to the present time have been inefficient on account of lack of speed. The new large destroyers were also to be used as flotilla guides. There was in 1909, one destroyer, the *Umekase*, in Maizuru; a second was building at the Mitsubichi shipyard; and a third, to be shortly laid down at Maizuru. They were to be ready in 1911, and resemble the *Mogami* in outward appearance, with one mast, and four funnels. The armament was to consist of 2 10-centimetre and 5 7.6-centimetre guns, with 3 torpedo tubes. The Kawasaki shipyard, at Kobe, received, during 1909, an order for several submarines, number and kind of which were not announced.

Admiral Togo retired from naval command in 1909, and was succeeded by Vice-Admiral Ijuin. He was appointed a member of the Military Council. In the manœuvres of 1909, 120 vessels of all classes took part; the operations lasted for 30 days, ending on November 17. Progress was made on the great pier building at Maizuru, which was to be finished in 1914, at the latest. Ships of 3000 tons will be able to coal alongside; depth of water at low spring tide, 6 m.

FINANCE. The monetary unit is the yen, worth 49.8 cents. Revenue and expenditure in yen are reported for fiscal year ending March 31, as follows:

	1906	1907	1908
Revenue	508,473,473	514,852,319	823,886,642
Expenditure ..	420,731,068	463,875,135	596,083,223

For the fiscal year 1909 estimated revenue and expenditure balanced at 619,797,671 yen; for the fiscal year 1910, estimated revenue, 518,929,283 yen, and estimated expenditure, 518,921,111 yen. The budget for the fiscal year 1911, submitted to the Imperial Diet by the Minister of Finance on December 18, 1909, balanced at 534,172,706 yen; the estimated ordinary and extraordinary revenue were 488,929,564 yen and 45,243,142 yen respectively; expenditures, 420,980,405 and 113,192,301 respectively. The principal items of estimated ordinary revenue were: Government business and miscellaneous (monopolies, posts and telegraphs, forests, etc.), 125,612,780 yen; saké tax, 87,781,857; land tax, 85,397,080; customs, 45,411,327; income tax, 27,501,644; business tax, 25,303,507; stamps, 24,108,159; tax on textile fabrics, 18,705,505; sugar excise, 15,243,211. The principal branches of estimated expenditure were as follows, the figures in parenthesis indicating extraordinary expenditure in addition to the ordinary: Department of finance, 200,662,191 yen (20,726,826), the principal item being service of the debt; army, 76,289,697 (10,903,731); navy, 38,992,110 (37,088,708); communications, 57,760,680 (17,918,763); home affairs, 11,611,353 (13,773,536); agriculture and commerce, 7,312,719 (7,435,-

550); justice, 11,947,562 (739,516); education, 7,647,920 (1,278,671).

On March 31, 1909, the internal debt amounted to 1,084,605,598 yen; external, 1,165,701,224; total, 2,250,306,822 yen.

The total Japanese coinage (exclusive of re-coinage) from the foundation of the mint in 1870 to March 31, 1908, amounted to 673,767,456 yen; on the latter date the circulation of Bank of Japan notes was 309,560,569 yen.

On December 31, 1908, the total number of banks was 2194 (with 2369 branch offices), with paid-up capital of 444,204,041 yen and deposits of 1,062,881,003 yen. The Bank of Japan (with eight branch offices), has a paid-up capital of 30,000,000 yen and deposits of 471,052,261; 46 agricultural-industrial banks had a paid-up capital of 28,620,000 yen and deposits of 8,219,649 yen; 484 savings banks (with 711 branch offices), and a paid-up capital of 291,599,745 yen and deposits of 931,059,400 yen.

ARMY. In Japan military service is universal and compulsory, liability to conscription being the lot of every citizen between the ages of 17 and 40, though actual service does not begin until the age of 20. Those that are absolutely fit for service are drawn for the active army (Geneki) spending 2 years in the infantry and 3 years for other arms, with the colors. The remainder of the 7½ year period is spent in the active army reserve (Yobi), which is followed by 10 years in the second reserve (Kobi), and then by the remainder of the period of liability passed in the territorial army (Kokumin). A recruiting reserve (Haju) is maintained to make good the waste of war and is composed of those not required for the first line. In 1909 it was believed that this might be abolished.

The Japanese army organized on a peace basis comprises 76 regiments (228 battalions) of infantry; 27 regiments (89 squadrons) of cavalry; 25 regiments (150 6-gun batteries) of field artillery; 19 battalions of engineers; 19 battalions of train; 1 brigade of railway, telegraph, and balloon troops; 6 regiments and 6 separate battalions of coast and fortress artillery, 3 battalions of mountain artillery and 2 mixed brigades of guards of Formosa, and the militia of Tsoushima for defense of the islands. No exact figures are available for the strength of the Japanese army. The total effective on a peace basis was estimated at 250,000 men, organized into 19 divisions each of 12,500 men. In time of war each could be brought up to 18,000 men and put the effective war total of the active army at 300,000 more. In addition there would be 200,000 from the reserve. The following figures were given by General de Negrier in an article on the "Japanese Forces in 1909":

Annual conscription	520,000
Active army (Geneki and Yobi)	742,800
First reserve (Haju)	382,000
Second reserve (Kobi)	780,000
Drilled men of the landstrum	115,000
Men with elementary practice	846,000

This would indicate that Japan could mobilize, put into the field and maintain, without undue effort in time of war, an army of at least 1,500,000.

In 1909 the officers in actual service numbered 10,088, reserve officers 5034, and territorial reserve officers 3060.

Further progress was made with the reorgan-

ization under the law of 1907. The 19 divisions, 18 of line troops and 1 of guards, to which the army had been increased during the Russian War, were retained, but the cavalry was increased by two additional brigades, of 1200 men each, the 3d and 4th of which were being organized at Motiska and Toyshashi. Two heavy field artillery brigades were contemplated to be equipped with 4-in. guns and 4.7-in. and 6-in. howitzers. A new model of field-gun had been developed and adopted but its introduction was postponed, as was said, for financial reasons. It fired a 14.3 pounder shell with a muzzle velocity of 1700 foot seconds.

GOVERNMENT. Under the Constitution of February 11, 1889, the executive power is exercised by the Emperor, with the advice and consent of the Cabinet Ministers, who are appointed by, and are responsible to, himself. The Emperor also exercises legislative power, with the consent of the Imperial Diet. Every law requires the consent of this body, which consists of two houses, the House of Peers and the House of Representatives. Members of the latter number 379, elected by male subjects having attained the age of 25 and possessing certain property qualifications. The Emperor in 1909 was Mutsuhito, who was born November 3, 1852, and succeeded his father, Komei Tenno, February 13, 1867. The heir apparent is Prince Yoshihito, born August 31, 1879. The Cabinet at the end of 1909 (from July 14, 1908) consisted of the following members: Premier and Minister of Finance, General Marquis Katsura Taro; Minister of Foreign Affairs, Count Komura Jutaro; Home Affairs, Baron Hirata; War, General Viscount Terauchi Masatake; Navy, Vice-Admiral Baron Saito Minoru; Justice, Viscount Okabe; Agriculture and Commerce, Baron Oura; Communications, Baron Goto; Education, Mr. Komatsubara.

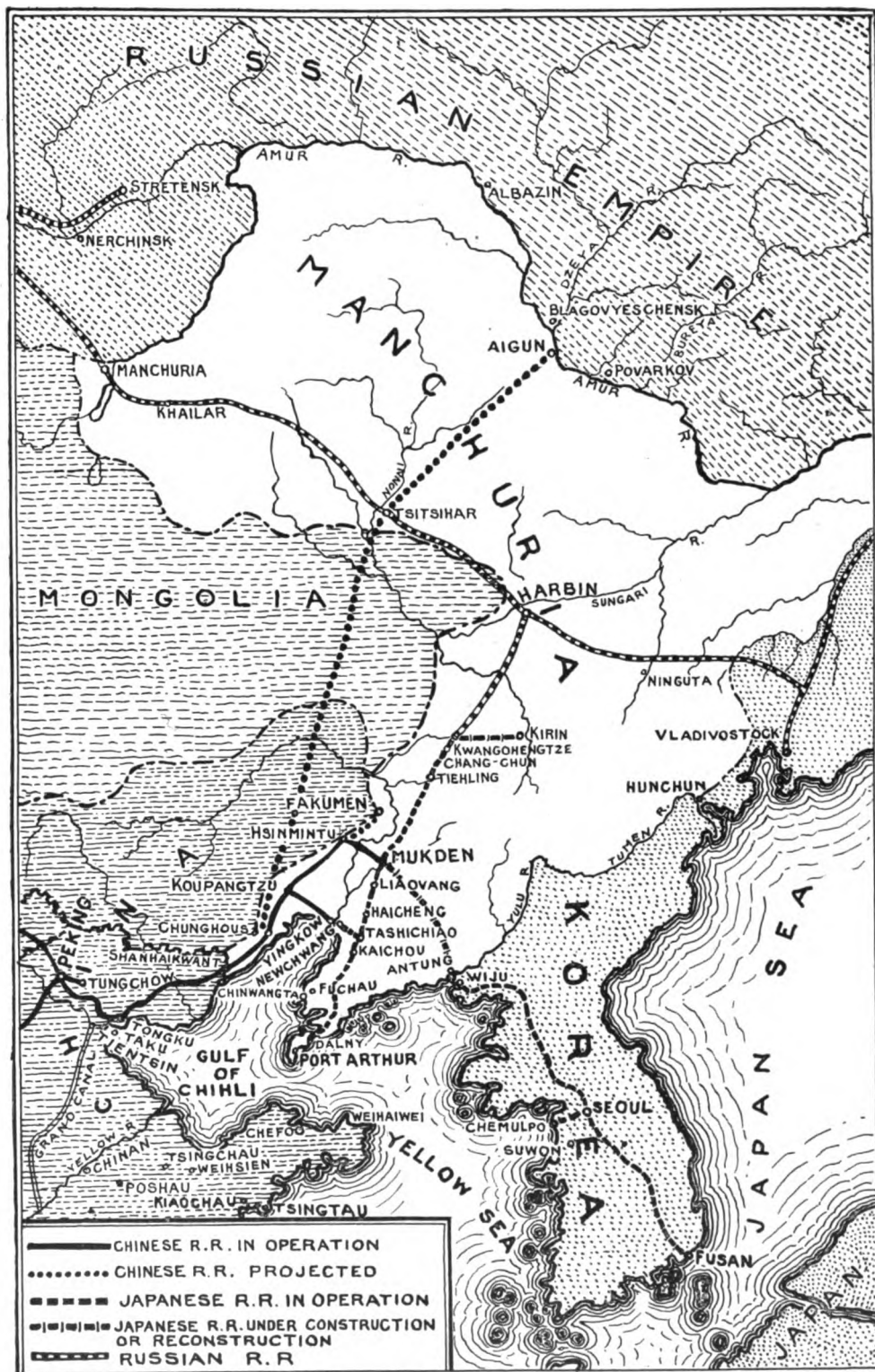
HISTORY

THE NEW PARLIAMENT. The parliamentary session began in December, 1908, but down to the new year accomplished little more than the organization of the Houses, actual business not beginning until after the recess, January 21. The distribution of parties in the lower House was as follows: Out of a total of 379 members, the Seiyu-kai numbered 192, the Progressists, 67; the Boshin Club, 42; the Yushin-kai, 44 and the Daido Club, 34. There was no consolidated opposition against the Seiyu-kai Club on account of the differences between the other groups. In general, the first four of the above parties are liberal and the fifth, that is the Daido Club, conservative. The latter are the only body that have been thoroughgoing supporters of the Ministry. The Yushin-kai are independent free lances of radical tendencies. The Boshin Club, consisting of business men admitted under the new election law of 1901, have always been on the government side, as they have desired above all a stable cabinet. The Progressists, a party of tendency rather than distinct principles, have stood ready for coalition, hoping to be the nucleus of a strong opposition party. At the end of February the ship subsidy bill passed the lower House after an amendment that limited its duration to five years. It subsidized the routes to Europe, North and South America and Australia. There was some danger of a contest between the House

and the Cabinet over the budget, but the Budget Committee finally decided to adopt the government's proposals. A matter that drew much public attention and was widely commented on in the press was the so-called Sugar Scandal. Charges of corruption made against certain deputies of the lower House in connection with the Japanese Sugar Company led to an investigation. In the spring nine deputies were arrested. Later others were arrested and at the trial, which ended on July 4, twenty-four members of the House of Representatives were under the charge of bribery and corruption. Only one was acquitted, the rest were sentenced to prison and ordered to refund the bribes. The accused belonged to all the parties in the Diet, but none were in the first rank. The corruption occurred in connection with the bill introduced by the government for a rebate of the consumption tax, in order to encourage the exportation of sugar. The measure would probably have passed anyhow, as it went through by a large majority. Some few of the accused confessed. Among these was a person who had hitherto been above suspicion, namely the former president of the American Board of Missions College in Kyoto. The effect of these disclosures was greatly to shake the confidence of the public in the lower House. The main features of the budget for the ensuing year were: Tax reduction and reform, increase in the salaries of government officials, economy in administrative expenses, and an increase of the sinking fund.

FOREIGN RELATIONS. In his speech on foreign affairs, February 2, the Foreign Minister, Count Komura, referred to the solid basis on which the alliance with Great Britain rested, to the increasing intimacy of the relations with Russia, and to the satisfactory relations with France and Germany. As to the United States, he declared that the traditional friendship between the two countries would not, in his opinion, be adversely affected by the proposed anti-Japanese measures in the California Legislature. (See CALIFORNIA). As to China he expressed the sympathy of Japan with China's reform policy and Japan's adherence to the principle of the open door. The speech was attacked by Count Hattori, especially for the reference to the United States, the speaker declaring that the agreement between Japan and the United States was humiliating to the former country. But the overshadowing questions of the year concerned Japan's relations with China, which are discussed in the succeeding paragraphs.

THE FA-KU-MEN DISPUTE. The principal questions between China and Japan which were carried over from the preceding year were: (1) The Fa-Ku-Men Railway question; (2) The status of the Chien-tao region; (3) The Antung-Mukden Railway question, and (4) certain questions as to the exploitation of coal mines and a question affecting the forests of the Yalu region. China had planned the extension of the railway from Fa-Ku-Men to Hsin-min-tun, basing her rights on the provisions of the Treaty of Portsmouth which left in her hands the commercial development of Manchuria. She took steps to carry out the plan in 1907, awarding toward the close of that year the contract for construction to a British firm. Japan's side of the question may be summarised as follows: Hearing of the negotiations, Japan reminded China of the provision against doing anything



Courtesy of the "Review of Reviews"

RAILWAY MAP OF MANCHURIA, 1909

that could injure Japan's Southern Manchurian Railway and declared that this was a project for a competitive line, especially if the railway were run northward so as to divert the traffic of Northern Manchuria. Conferences had been held on the subject in 1908, but came to nothing. China contended that the line was in no wise competitive, and Japan urged that on this question she should have the benefit of the doubt. In February, 1909, Japan proposed either that China should build the line from Fa-Ku-Men to the Southern Manchurian Railway instead of to Hsin-min-tun or that Japan extend the Southern Manchurian line to Fa-Ku-Men, in which case she would withdraw her objection to China's constructing a line between Fa-Ku-Men and Hsin-min-tun, if she did not extend it beyond Fa-Ku-Men without previous agreement. See CHINA, paragraphs on *History*.

THE ANTUNG-MUKDEN QUESTION. This dispute arose over conflicting interpretations of the Treaty of Peking (December 22, 1905), under which China contended that Japan had the right to improve the road, but not to rebuild. Japan, on the other hand, wished to replace the present gauge with the standard gauge and build on a new track. The road had been used for the despatch of Japanese troops during the war with Russia and Japan was left in control of it under the Treaty of Peking, which, as interpreted by the Chinese, did not give Japan the right to make any such radical changes in the first place, and in the second place fixed a limit of time within which any changes could be made. According to the terms of the treaty to which China appealed, Japan's improvements in the road must be made within the three years following the signing of the treaty. This period expired at the close of the year 1908. After that, Japan was to retain the road during a supplementary period of fifteen years, at the expiration of which time, in 1923, China might buy the road back again if she wished. Japan deferred making any improvements in the road till the close of 1908 when she announced plans of reconstruction. Japan, on the other hand, regarded the road as a branch line of the Southern Manchurian Railway, and held that they were free to make such changes in it as they chose. In the discussion of the subject in the Japanese press, an English version of the treaty was cited as containing the word "transformation" and the Japanese writers contended that the most radical changes were permitted by the treaty; but the Chinese pointed to the original text as referring only to improvements and they took their stand also on the delay of Japan beyond the prescribed limit of three years. In July, the debate reached a very acute stage and the Japanese press contained many aggressive articles on the subject. Finally, on August 6, the Japanese Foreign Office addressed a note to the Powers holding China responsible for the delays, accusing her of an obstructive policy and of having done everything in her power to annul the Peking treaty. This declaration, however, did not discuss the main contention of China in regard to the stipulated period within which improvements must be made. Japan had been using the road for the transportation of her troops, and one cause of anxiety to China was the chance that the road might be used for military purposes. China also protested against the policing of the line by the Japanese. On August 11, the Chinese government issued its reply. It

was very mild and conciliatory in tone. It appealed to the text of the treaty and declared that Japan had exceeded the stipulated time for making improvements, but that China would not press this point; nor would she urge the evident fact that there was no economic necessity for enlarging the road. She would concede these points and would also concede the change of track. A memorandum embodying these concessions was signed by China at Mukden on August 9. Practically it indicated a complete abandonment of her position and was regarded by friendly Powers as too complete a surrender.

CHIEN-TAO DISPUTE AND OTHER QUESTIONS. A dispute had arisen as to the status of the inhabitants of Chien-tao, which is on the border between Korea and China. It had to do with the question of policing the settlements of the Koreans, Japan contending that the immigrants from Korea were under her jurisdiction; and China pointing to an arrangement whereby on entering Chien-tao the Koreans lost their nationality and became subjects of China. There was also a question as to the readjustment of the boundary. Early in the summer Japan waived her claim on behalf of Korea in the matter of the boundary, provided the other questions, including that of jurisdiction over Korean settlers, were decided to Japan's satisfaction. At this time China proposed arbitration, but it was not accepted by Japan, who held that diplomatic measures had not yet been exhausted. In July, Japan made certain other proposals, but the matter could not be adjusted. Chief among the other questions was that of the forests of the Yalu region. The right to develop that region was granted to a Chinese company with the privilege of buying at its own price the timber that was sent down the river to Antung. The Chinese held that they had paid their portion, but that the Japanese had not and they also complained of the insistence of the latter that the timber set apart by the military should be credited to their share of the capital. There were further questions as to the exploitation of the coal mines and as to the right of fishing in Korean waters. Japan offered to allow the Chinese the right of fishing off Korea in return for the right of the Japanese to fish off the Chinese coast near by, but this was refused.

Soon after the settlement of the Antung-Mukden dispute, the other questions which had been pending between the two Powers were settled in the convention of September 4, 1909. The Chinese position in the Chien-tao matter was maintained, but the other points were settled mainly in the interest of Japan. The comments on this whole Manchurian question varied greatly with the national sympathies of the writers. In pro-Japanese quarters, especially in leading English newspapers, the Japanese side was taken throughout, and on the whole the press reports were somewhat colored by pro-Japanese sympathies. On the other hand, many observers well acquainted with conditions in the Far East, condemned bitterly the policy of Japan in Manchuria as aggressive and ruthless, and characterized the course of her diplomacy throughout these disputes as resting merely on brute force, and as springing from the knowledge that China was in no condition to support her claims by war. On behalf of this view the comments of the Japanese press during the year were cited and the note of August to the Powers was characterized as virtually an ultimatum resting at

the last analysis on superior force. The following brief resumé of the Japanese policy in Manchuria is condensed from the account of a French traveler contributed to the December number of the *Revue Politique*:

Article 4 of the Treaty of Portsmouth guaranteed Chinese sovereignty in Manchuria and the policy of the open door to all the non-contracting nations. It provided that "Russia and Japan reciprocally engage not to place any obstacle in the way of any general measure applying equally to all nations, which China may undertake for the development of commerce and industry in Manchuria." In Article 6, Japan and Russia agreed to exploit their Manchurian railways only for economic and not for strategic ends. Since the war, however, Japan has steadily encroached on Manchuria and her leading newspapers and public men have plainly shown their purpose of extending a pacific conquest over the country. For example, in 1908, a prominent economic review published in Japan declared that Japan suzerainty over Manchuria must be asserted; that Southern Manchuria must be regarded as a Japanese sphere of influence and that she must have the right of property there, come what may. It was essential that Japan should have a more advantageous position in Manchuria than any other nation. This was the prevailing view of Japan's leading public men. Evidences meet the traveler on every side of the extreme activity and aggressiveness of the Japanese in Manchuria. They maintain there an army of consular agents who are to be found everywhere and whose intrusiveness is a matter of great annoyance to the other foreigners. They exert a paramount influence over the administration. They treat Mukden, so this observer says, as if it were a conquered city. He found that the two papers published there in Chinese were either directly or indirectly under Japanese control. In diplomacy they pursue a double-faced policy, playing Russia off against China. They have taken advantage of their right to guard the Southern Manchurian Railway by maintaining on it a large force of troops who constantly interfere with matters that do not concern them. The guards of the Manchurian Railway are to be found at distant points in the interior, where they run affairs in a high-handed manner. Frequent raids are made under the guise of expeditions against marauders, but these marauders are often merely imaginary. In short, the policing of the Manchurian Railway by the Japanese has been made by Japan a pretext for violating the Treaty of Portsmouth, by keeping her military in the country. In March, a Tokio paper estimated the number of Japanese in Manchuria at the beginning of the year at 63,000, of whom 14,000 were agents, officials and operatives of the railway, including those depending upon them, and the rest were merchants trading with the Chinese. The same paper congratulated its fellow-countrymen on the fact that traveling along the railroad one might feel himself actually in Japan, all the settlements in sight being so largely of Japanese character. The Chinese officials are obliged to wink at transgressions of the law by the Japanese, knowing that their government will not support them against their more powerful rival. These officials, however, do not disguise their distrust of the Japanese. After the backdown of China in the Antung-Mukden dispute on August 10, 1909, the Chinese

resorted to their favorite weapon, the boycott, as they did in 1908 during the Tatsu-Maru affair and many of the merchants throughout Manchuria refused to buy Japanese goods. The journey along the Antung-Mukden Railway now takes two days. The plan of the Japanese calls for its reduction to eight or nine hours. The Japanese press generally upheld its government throughout the whole dispute over this railway, taking the position that China had repeatedly obstructed and delayed the negotiations and finally had imposed conditions utterly at variance with the treaty of 1905. See CHINA, paragraphs on *History*, and RUSSIA, paragraphs on *History*.

OTHER EVENTS. On October 26 Prince Ito (q. v.) was murdered at Harbin, whither he had gone to confer with the Russian Finance Committee on the Far Eastern question. He was in the company of the Russian Minister at the time. The murder took place at the railway station and was committed by a Korean, who, according to his own statement, wished to avenge his country and also had a personal grievance in that Prince Ito, while in Korea, had caused the execution of persons closely associated with the assassin. The police believed that the assassination was part of an organized plot. Many expressions of sympathy were received from foreign countries where Prince Ito was well-known and greatly respected. For fifty years he had been a leader in political affairs and was generally regarded as the foremost statesman of Japan. He was Resident-General in Korea from the latter part of 1905 to July, 1909, when he retired. During the three and one-half years of his administration he showed great energy and ability and although distrusted by the natives and by those who condemned Japan's entire Korean policy, his course was generally admitted to be moderate and conciliatory. He aimed to avoid the mistake which his predecessor had made of treating the natives with too great severity and his programme was one of progress and reform under Japanese leadership. He had long possessed the entire confidence of the Mikado. Prince Yamagata was appointed to Prince Ito's place as president of the Privy Council. A great fire occurred on July 1 at Osaka, covering an area of nearly four square miles and destroying about 11,000 houses. Many lost their lives and the destruction of property was estimated at \$2,500,000. A severe earthquake occurred on August 14 in central Japan. It extended over a wide area and destroyed between three and four hundred buildings, including many temples, and damaging a thousand more. The number of the killed was estimated at thirty and of the injured at eighty-two.

JAVA. An East Indian island, constituting the most important colonial possession of the Netherlands. Area, 48,503 square miles. Attached to Java administratively are Madura and several other small adjacent islands, the whole being officially known as Java and Madura, with an area of 50,775 square miles and a population (1905) of 30,098,008. The chief cities, with population in 1905, are: Batavia, capital of the Dutch East Indies, 138,551; Subarhya, 150,198; Samarang, 96,000. Non-white Christians (1905), numbered about 26,000. In 1906 there were 323 government elementary schools for natives, with 74,984 pupils, and 446 private schools, with 50,344 pupils, besides schools for

Europeans. In 1907 the special trade of Java (and Madura) showed imports and exports of merchandise valued at 147,704,000 guilders and 211,634 guilders respectively. See DUTCH EAST INDIES. See also FORESTRY.

Much damage resulted in September from an eruption of Smeroe, the highest volcano on the island, and at the same time in the southeastern part of Java serious floods occurred which were thought to be associated with the eruption. The estimated loss of life was 500.

JEWETT, SARAH ORNE. An American author, died June 24, 1909. She was born in South Berwick, Me., in 1849, and was educated at the Berwick Academy. She began early to write, and when hardly more than a child had contributed stories to *Young Folks*, and the *Riverside*. When she was 19 years old she sent a story to the *Atlantic Monthly*, where it was at once accepted and recognized as of unusual merit. Her first story to appear in book form was *Deephaven* in 1877. Other volumes are: *Play Days* (1878); *Old Friends and New* (1879); *Country By-ways* (1881); *A Country Doctor* (1884); *A Marsh Island* (1885); *The Queen's Town* (1899); and *The Tory Lover* (1901). Miss Jewett's stories are remarkable for the skill and delicacy with which she has delineated the characteristics of the New England villagers and coast dwellers. She wrote with a rare sweetness and simplicity. She traveled much in Europe, but the greater part of her life was spent in her native town of South Berwick. She received the degree Litt. D. from Bowdoin College.

JEWETT, SOPHIE. An American educator, died October 11, 1909. She was born at Moravia N. Y., in 1861, and was educated in private schools. From 1889 to 1897 she was instructor in English Literature at Wellesley College, and from 1897 to the time of her death was assistant professor in the same chair. She was the author of *The Pilgrim*, and *Other Poems* (1896); and *God's Troubadour* (1903). She edited the *Holy Grail* in 1901, and contributed other poems to several magazines.

JEWS. According to the Jewish calendar, the period from September 16, 1909 to October 3, 1910, is numbered 5670 from the beginning of Jewish history. The statistics of Jews in the world are based largely upon estimates. Only in Russia, Austria-Hungary, Germany, and a few other countries is it possible to obtain official figures. According to estimates based on the *Statesman's Year Book*, the *English-Jewish Year Book*, the *Jewish Encyclopædia* and the *American-Jewish Year Book*, the total number of Jews in the world at the latest date available was 11,530,848. Of this number the largest portion is found in Russia, where there were something over 5,000,000 Jews. Second in order is Austria-Hungary where the Jews numbered over 2,000,000. The United States is third, with a Jewish population estimated by the *American Jewish Year Book* in 1907 at 1,777,185. In Germany there are 607,862; in Turkey, including Palestine, 463,686; in the British Empire, 380,809; in Rumania, 250,000; in Holland, 106,000; in Morocco, 109,000. Nearly every other country in the world is represented by those remaining. Below in separate paragraphs will be found mention of the chief events in the various countries in which the Jews were concerned during 1908-9.

UNITED STATES. One of the most important

political events relating to the Jews was the passage on March 1 and 3 by both Houses of Congress of joint resolutions introduced by Representative Goldfogle, which called upon the President to secure from Russia the full rights for the holders of passports, regardless of race Congress of joint resolutions, introduced by the legislature of Rhode Island, and were introduced in the legislature of Connecticut. Oscar S. Strauss, one of the most important Jews in the country, was appointed Ambassador to Turkey by President Taft. The Federation of Jewish organizations in New York petitioned Congress for the appointment of Jewish chaplains in the army and navy, and named a committee to investigate alleged abuses of the method of naturalization.

The question of the Bible in the public schools continued to agitate the Jewish communities in a number of places. A decision was rendered in New Jersey that pupils in public schools are not compelled to participate in devotional exercises. The campaign against sectarian Christmas celebration in public schools was carried on in Baltimore and Philadelphia. Among the large philanthropic bequests was that of \$1,000,000 by the will of Louis A. Heinsheimer, of New York, to a projected federation of six of the largest Jewish charitable institutions of that city, provided federation was consummated within one year after the date of the probate of the will. A Jewish maternity hospital costing \$1,000,000 was dedicated in New York City, and several prominent Jews gave \$30,000 to the Institution for the Improved Instruction of Deaf Mutes.

A number of bills were introduced in the New York Legislature relating to enforcement of the law making Sunday a day of rest. These were designed to obviate the necessity of Jews observing that day. All these measures failed of enactment. Bills to make Sunday a day of rest also failed in California, and in Connecticut and Massachusetts there was agitation in favor of a more liberal Sunday law.

The statement made by Theodore A. Bingham, Commissioner of Police, that alien Jews make up one-half the criminals of New York City, resulted in emphatic denials and retraction of this statement by Mr. Bingham, who admitted that these statistics were faulty. An event of importance was the organization of the Jewish Community of New York as a formal body. This organization aims at the coördination of the Jewish religious, educational and philanthropic institutions of New York City. It has also a wider significance in that it aims to have general supervision over all matters relating to the problems affecting Jewish communities.

ENGLAND. The year 1908-9 was marked by several interesting occurrences relating to Jews and the Jewish faith. The Third International Congress of Religions was held at Oxford in the autumn of 1908, and was attended by many prominent Jewish scholars from all parts of the world. An interesting theory was advanced by Professor Paul Haupt, of Baltimore, that Jesus was not a Jew by race. This was energetically combated by Dr. Moses Gaster and others. A report of the educational facilities of the United Kingdom, disclosed the fact that England had twelve Jewish public schools, providing for 10,902 children. The situation of Jews in Rumania was made the subject of a memorial to the government by the Conjoint Committee of the

Jewish Board of Deputies and the Anglo-Jewish Association at the time when it was believed that the Berlin Treaty was to be revised after the developments in the Balkans. In November, 1908, the Jewish Religious Union held a notable meeting at which reports on the condition of Liberal Judaism in France and Germany were presented. Several Sunday closing bills were introduced into the House of Commons. These aimed to make Jews completely dependent upon their local authority for permission to trade on Sunday. The bills failed of passage.

FRANCE. The Jewish Consistory of Paris numbered in 1909, 3666 members. It was decided that foreign Jews may be admitted to membership if they have lived ten years in France. A Jewish Statistical Society was founded. At the conference of the Jewish French Rabbis, held in Paris in June, 1909, discussion was confined to various suggested changes in the ritual, among others the adoption of a triennial cycle for the reading of the Law.

GERMANY. The Jews of Germany continued to enjoy peace during 1908-9. Of interest is the action of the Bavarian government which decided to exclude all reference to the faith of the holder in the passports for travelers in Russia. A new museum of Jewish ceremonial objects was opened at Strassburg, and an institution for the education of Jewish defectives in a suburb of Berlin. Questions in regard to Jewish participation in the white-slave traffic caused much discussion. Dissatisfaction continued in regard to the position of Jews in the German army. Statistics showed that of some 25,000 volunteers since 1880, not one has reached the rank of officer in the reserve, although the government has officially declared this post open to all German volunteer soldiers regardless of creed. It is alleged also that often Jewish soldiers are subjected to insults and ill treatment by those placed in command over them.

AUSTRIA-HUNGARY. A department to deal with the religious interests of Jews was created by the government. The arrest of 150 suspected Russo-Jewish revolutionists at Budapest aroused much indignation. An economic boycott of Jews in several towns in Hungary was organized by the Union of Tradesmen. The Hungarian Minister of Education decided to recognize only such Jewish communities as have a rabbi at their head.

RUMANIA. Although there were no actual outbursts of anti-Semitism during the year as there were in the year previous, it was alleged that the actual repression of the Jews residing in Rumania still continued. Actions against Jews included the prohibition by the Mayor of Jassy of Jews from repairing schoolhouses. The objectionable oath, *more judaico*, is still required for the Jews by the local courts of justice in Rumania.

RUSSIA. The troubles of the Jews in Russia during the year were not so acute as in several years immediately preceding. In Tiraspol, a family of twelve Jews was murdered by peasants. Similar attacks were made in other towns in the empire. The persecution of Jews generally took the form of orders of expulsion. Jewish artisans were forbidden to reside in the capitals of those provinces which are not within the Pale of Settlement. Trials of the organ-

izers and perpetrators of the pogroms of several years ago were carried on during the year, but there were practically no convictions. Such sentences as were imposed were small. The position of the Russian Jews residing within the Pale of Settlement remains extremely unfavorable, while their condition socially and economically is most precarious. For the first time a congress of Jewish communal workers and representatives of the communities in the Pale was held at Kovno. The subject of Jewish recruits in the army furnished much discussion throughout the year. In Poland the Governor-General levied a tax of 500,000 rubles on those Jews whose sons failed to present themselves for conscription. The Yiddish drama was proscribed throughout the empire, and the Jews continue to be hampered by educational restrictions. The existing law which limits the number of Jewish students in the high schools to 10 per cent. of the total is strictly enforced. (For restriction of admission to universities, see **RUSSIA**, paragraph *Other Events*.) It is reported that at least 130,000 Jews in southwestern Russia alone are without any educational facilities. The government created a committee on Jewish religious education in secondary schools.

The Octobrists in the Duma decided to press the passage of a bill for the abolition of the Pale Settlement, but the session ended before any action had been taken. The Duma passed a bill, guaranteeing freedom of conscience. See **RUSSIA**, paragraph on *History*.

TURKEY. The great events which took place in Turkey during 1908-9 will undoubtedly have a great effect upon the Jews residing in that country, but what this will be cannot now be indicated precisely. The establishment of a constitutional régime was enthusiastically greeted by the Jews of Turkey. The Young Turks, on the whole, have been kindly disposed towards the Jews, and the new government has instituted a number of needed reforms in the case of the non-Mohammedan population. The special tax, which the Jews hitherto have been obliged to pay in lieu of military service, has been abrogated, and the army of Turkey is now open to them on the same terms as to other Turks. Reforms have also been proposed in the laws governing religion, education and taxes.

The year in Palestine was marked by efforts looking toward the completion of the Herzl Memorial Forest and the establishment of the new Jewish colony, *Ain Ganim*. Coöperative societies for the purchase of land in Palestine were organized throughout Russia. While existing restrictions on Jewish immigration to Palestine have not been abrogated, those high in authority have expressed the view that Jews should be permitted to settle unrestrictedly in the Holy Land. Announcement was made in May, 1909, that the Imperial Ottoman government intended to abolish all restrictions on Jewish immigration, and to confer full rights of citizenship on Jewish immigrants immediately after their arrival in the country.

MOROCCO. The year 1908-9 saw a turn for the better in the condition of the Jews in Morocco following the decision of the contest over the succession in favor of Mulai Hafid. The Jews continued to be penned up in separate quarters of the towns, but Mohammedans have begun to acknowledge that they have some legal rights.



Copyright by Pach Bros., New York

JOHN A. JOHNSON
GOVERNOR OF MINNESOTA
Died 1909

ZIONISM AND ITOISM. Considerable progress was made during the year 1908-9 in the movement toward Zionism. In the United States Zionists were active in their work for the National Fund and for Palestinian development. At the Palestinian Triennial Conference, held at Odessa, 600 delegates attended. At the annual conference of the English Zionist Federation, held at Sheffield on January 31, and February 1, 1909, Dr. Gaster was again chosen president, but those who were opposed to his construction of Zionist policies, succeeded in electing Leopold J. Greenberg, proprietor of *The Jewish Chronicle*, as London vice-president. University Zionist societies were established at Oxford, Cambridge, and in London. In Russia there was considerable trouble, due largely to the activities of the anti-Semitic press, which asserted that the Zionists aimed at the unqualified independence of Palestine. The Minister of the Interior turned over the official supervision of the Zionists to that department which controls the non-orthodox religious sects.

The Ito, a society which is active in providing for the establishment of Jewish colonies in various countries, was active during the year. The Emigration Regulation Department, the Galveston branch of the society, carried on important work, and it was legalized in a restricted sense by the Russian government, providing it confined itself entirely to the regulation of emigration. No decision was arrived at with regard to the proposed Jewish settlements in Mexico. At the London meeting of the Society, the unfavorable report of the Geographical Commission on the proposed autonomous Jewish colony in Northwestern Africa was foreshadowed, and a plan to found Jewish colonies in Mesopotamia was supported. The Commission reported unfavorably on Cyrenaica in Tripoli as a land for Jewish colonists. At another meeting in London and at Leeds, Mr. Israel Zangwill, who is the leader of the movement, announced that the Society would now bend all its energies to establishing Jewish colonies in Mesopotamia. He expressed the hope that a number of prominent Jewish leaders throughout the world would help finance the scheme. It is believed that at least \$40,000,000 are required. In a later interview, Mr. Zangwill said that his organization would probably abandon the Mesopotamia project on account of the "incomprehensible ingratitude" with which it has been received by the Jewish press.

JOHNS HOPKINS UNIVERSITY. An institution of higher learning at Baltimore, Md., founded in 1876. In the year 1909-10 the students numbered about 700 and the faculty, 190. There were in the library 142,000 volumes. Among the changes in the faculty were the appointments of Professor F. von Picquet of Vienna, Austria, as professor of pediatrics, and of Burton E. Livingston, M. D., of the Carnegie Institution, Washington, professor of plant physiology. In 1907 the trustees decided to admit women to graduate courses and about twenty women were in attendance. Plans for new buildings of the University at Homewood have been prepared but construction will not begin until at least \$1,000,000 is available for that purpose. The endowment of the University is about \$4,500,000 and its present academic buildings, equipment and grounds are valued at

more than \$2,000,000. The president is Dr. Ira Remsen.

JOHNSON, JOHN ALBERT. An American public official, Governor of Minnesota, died September 21, 1909. He was born, of Swedish parentage, near St. Peter, Minn., in 1861. His father was of dissolute habits, and when the son was thirteen years of age, died of alcoholic dementia in a county poorhouse. Young Johnson at once left school and undertook the support of his mother. He began work in a grocery store, and later worked in a drug store, and in a general store. During these occupations he found time to read such books as fell in his way. He became, later, time-keeper for a railway construction gang. When he was twenty-five years of age, the editorship of the St. Peter *Herald*, a Democratic paper, became vacant, and the place was offered to him. Although he had done no newspaper work, his wide acquaintance and his popularity made him successful in this post. He became, in a few years, part owner of the paper. In 1894 he was nominated as a Democratic candidate for the State Senate, but was defeated. Four years later he was successful, and served as Senator in three successive legislatures. During this service he showed no especial ability, but became known as a clean, honest legislator, with much skill in securing votes. In 1902 he was defeated for the State Senate. In 1904 the Republican party in Minnesota was disrupted by internal dissensions, chiefly over the question of the taxation of railroads. Johnson, who strongly favored an increase in such taxation, was nominated for Governor by the Democrats. The division among the Republicans and his power with the Scandinavian voters won him the election by 7800 votes, although Roosevelt carried the State by a plurality of 161,000. In 1906 he was reelected by a plurality of 72,000 votes. During the Presidential campaign of 1908, Governor Johnson was the most prominent candidate for the Democratic nomination, after W. J. Bryan. He received the indorsement of the delegates of his State, and 46 votes were cast for him in the National Convention. He made no aggressive effort to secure the nomination. He had declared he would not serve another term as Governor, but he was nominated on August 19, 1908, and was elected by a plurality of 20,000 votes, although Taft carried the State by 85,000 votes. Governor Johnson, although many acts of a radical nature were passed during his administration, was regarded as belonging to the conservative wing of the Democratic party, as opposed to the followers of W. J. Bryan. By many he was considered the strongest logical candidate for the next Democratic nomination. He was a man of the highest moral character. Though not a great orator, he had a magnetism that drew men to him. His popularity in Minnesota was not limited to those of his own party. In 1907 Governor Johnson was given the degree of LL. D. by the University of Pennsylvania.

JOHNSON, MARTIN NELSON. An American public official, Senator from North Dakota, died October 21, 1909. He was born in Wisconsin, in 1850, and his parents moved in the year of his birth to Iowa. He graduated from Iowa State University in 1873, and taught for two years in California. He studied law and was admitted to the bar in 1876. He served a term

in each branch of the Iowa Legislature, and was a Hayes elector in that State. In 1882 he removed to North Dakota. He was elected district attorney in 1886 and 1888, and was a member of the constitutional convention which framed the constitution of North Dakota in 1889. From 1891 to 1899 he was a member of Congress from North Dakota. In 1908 he was elected Republican candidate for the Senate at the primary election, and in 1909 was elected to that position by the legislature.

JOHNSON, SAMUEL WILLIAM. An American educator and chemist, died July 21, 1909. He was born in Kingsboro, N. Y., in 1830. He studied at the Sheffield Scientific School and at Leipzig and Munich, and in 1856, he was appointed professor of analytical and agricultural chemistry in the Sheffield Scientific School. In 1874 he was made professor of agricultural and theoretical chemistry, holding that position until 1895, when he became professor emeritus. He was the organizer of the Connecticut Agricultural Experiment Station in 1877, and was its director for twenty-two years. In 1878 he was president of the American Chemical Society. The best known of his writings are *How Crops Grow* (1868, 1890) and *How Crops Feed* (1870).

JOHNSON, WILLIAM ALLEN. An American Protestant Episcopal clergyman and theologian, died May 7, 1909. He was born at Hyde Park, N. Y., in 1833, and graduated from Columbia College in 1853. After graduating from the General Theological Seminary, he was ordained priest in 1858. From 1858 to 1862 he was rector of churches in New York State. From 1862 to 1864 he was missionary in the copper mine region of Lake Superior. He was rector of St. Mary's Church, Ballington, N. J., from 1864 to 1867, and of St. John's Church, Salisbury, Conn., from 1871 to 1883. From 1883 to 1886 he was professor of homiletics and evidences of religion, and from 1887 to 1900 professor of ecclesiastical history in the Berkeley Divinity School. From 1900 to the time of his death he was professor emeritus. He was a constant contributor to the secular and religious press for many years, and was the author of pamphlets on church doctrine of confession and other theological subjects.

JOHORE. A nominally independent state of the Malay Peninsula, at the southern extremity. Its foreign affairs are controlled by Great Britain. Area, about 9000 square miles; population, about 200,000, chiefly Malays and Chinese. Chief town, Johore Bahru. The principal imports are opium, spirits, tobacco, rice, and hardware; exports, gambier, pepper, sago, tea, coffee, and gutta-percha. The Sultan is H. H. Ibrahim.

JONES, Sir ALFRED LEWIS. An English ship owner, died December 13, 1909. He was born in 1846. He was an honorary fellow of Jesus College, Oxford. He was senior partner of the firm of Elder, Dempster & Co., ship owners. He served as president of the Liverpool Chamber of Commerce, and as consul for the Congo Free State in Liverpool. He was a founder of the Liverpool School of Tropical Medicine. He was decorated in recognition of his services to the West Indian colonies and to Jamaica.

JONES, JOHN WILLIAM. An American clergyman, historian and lecturer, died March 17, 1909. He was born at Louisa, Va., in 1836,

and graduated from the University of Virginia in 1859, and from the Southern Baptist Theological Seminary in 1860. He was under appointment as missionary to China, but on the outbreak of the Civil War enlisted as a private soldier. From 1861 to the close of the war he served as chaplain, and carried on, in that capacity, successful revival meetings among the Confederate soldiers. Following the war he served in several pastorates, and as an official of missionary societies. For several years he was chaplain-general of the United Confederate Veterans. He was secretary of the Southern Historical Society from 1876 to 1887. He edited fourteen volumes of Southern Historical Papers. Among his writings are *Personal Reminiscences, Anecdotes and Letters of R. E. Lee* (1874); *Life and Letters of R. E. Lee* (1906), and *A High School and College History of the United States*. His lectures on Lee, Jackson, and other Confederate leaders were well known.

JONES, JOSEPH RUSSELL. An American capitalist and former public official, died April 11, 1909. He was born at Conneaut, O., in 1823. He began his career as clerk in a grocery store, becoming in 1846 secretary and treasurer of a large concern in Galena, Ill. Here he became acquainted with U. S. Grant. He was elected to the Illinois Legislature, where he met Abraham Lincoln. The latter, on his election to the Presidency, appointed Mr. Jones marshal of the northern district of Illinois. He held this position until 1869, when he was appointed Minister to Belgium by President Grant. In 1875 he was made Collector of the Port of Chicago. He was an organizer of many important industrial enterprises, and was one of the pioneers in the commercial development of Chicago.

JONES, LEONARD AUGUSTUS. An American jurist, died December 9, 1909. He graduated from the Harvard Law School in 1858 and practiced law from that date until 1874 when he turned his attention to writing on legal subjects. From 1874 to 1904 he was associate editor of the *American Law Review*, and from 1904 to 1907 was editor-in-chief. His writings include treatises on mortgages, corporate bonds, pledges, liens, real property, easements, landlord and tenant, and an index to legal periodical literature. He was appointed in 1898 judge of the land court, and from that time until January, 1909, when illness compelled him to resign, he was chief judge of that court.

JONES, WESLEY L. An American public official, United States Senator (Republican) from Washington. He was born near Bethany, Ill., in 1843 and graduated from the Southern Illinois College in 1866. He studied law in Chicago, and removed to Washington Territory just previous to its admission as a State in 1889. After working in a real estate office, he began the practice of law in 1890. He took an active part in the Blaine campaign of 1884 and the Harrison campaign of 1888 and has since been active in political campaigns. He was elected a member of Congress from the State at large from 1899 to 1909, receiving the largest number of votes in the primary election of 1908 for United States Senator. He was accordingly elected by the legislature to that office on January 19, 1909.

JONES, WILLIAM. An American anthro-

pologist, killed by savage Ilongots in the Philippine Islands in March, 1909. He was born in Oklahoma, of part Indian blood, about 30 years ago. His education was obtained at Hampton Institute and Harvard University. After anthropological work done in the United States for the Field Museum, he was sent by that institution in 1907 to the Philippines to carry on studies among the uncivilized tribes.

JUPITER. See **ASTRONOMY.**

JUVENILE COURTS. The year 1909 completed the tenth year of juvenile courts. First established in Chicago in 1899, such courts have been established in some form in cities throughout the United States and Europe. This movement has been most successful in the Mississippi Valley States, though Denver and Boston have also been among the foremost cities in its advance. Chicago has erected a magnificent juvenile court building, with court room, probation offices, detention home, clinic and school rooms. Philadelphia opened a model house of detention in January. It is four stories high and fireproof, has dormitories, courtroom and executive offices and cost \$164,000. A similar detention home has been constructed at Milwaukee, and one is planned at St. Louis. On January 1, a Children's Court was established in Buffalo, this being the first such court on the new lines authorized in New York State.

The lapse of ten years since the juvenile court movement was inaugurated, makes appropriate a brief summary of its principles and achievements. The essential ideas of the juvenile court are that the child should be treated differently and kept separate from the adult offender: that the court should be an agency, not simply for the punishment of the child, but for his reformation and his rescue from degradation; that the parent be made to feel a keener sense of responsibility for a delinquent child; and that the commitment of children to the common jail is unjustifiable, no matter what their offenses. In the application of these ideas, the juvenile court has adopted the method of hearing children's cases with the greatest possible degree of privacy, with the greatest possible discretion on the part of the judge, and with effort to treat each case individually. The judge has been given assistants, often the probation officers who inquire into the life conditions and antecedents of child offenders before these come to trial. Publicity is avoided; the offender cannot thus pose as a hero, and other children are less likely to imitate.

A very important adjunct of the juvenile court is the probation officer. Upon the faithfulness and efficiency of his work depends the ultimate success of the entire movement, but it is here that the greatest difficulty is met. Legislatures have been slow to recognize the necessity of providing a sufficient number of well-paid probation officers. While Chicago now has 65 probation officers, all moderately paid, New York City has only 3, all supported by private societies; St. Louis has 11, all well paid; Baltimore, and Louisville, 5 each; Cleveland, Cincinnati and Columbus, 6 each; Pittsburgh, 10; Detroit, 9; Denver and Washington, D. C., 3 each; Indianapolis, 4; Boston and Lexington, Ky., 2; and Rochester, Evansville, Muncie, and New Albany, Ind., 1 each. Some cities have probation officers without a special juvenile court. In most cities it is still impossible for the proba-

tion officers to give that careful, intimate personal oversight of each of their charges which the highest efficiency would demand. Thus the number of children per probation officer varied in 1909 from about 40 in Baltimore, to as many as 300 in Cincinnati, with an average of 100 in Chicago and 150 in St. Louis. Women, and particularly college-trained women, have proven highly efficient probation officers for wayward girls. While some judges still follow the method of fixing definite periods of probation, experience proves that an indefinite period brings better results.

The detention home is necessary in order to permit separation of juvenile from adult offenders, both before and sometimes after the court hearing. Such homes have, however, been provided as yet in only a few cities. Baltimore, for example, though ranking high in other respects, still uses its police stations for the detention of children. The belief is gaining ground that detention quarters should provide some facilities for education, play and suitable work, all done under efficient supervision.

At Chicago, a paid physician is employed to give physical examinations to child offenders, and several cities are favored with the voluntary services of physicians for such a clinic. The theory here is that juvenile delinquency is many cases due to physical defect, and can be done away with by expert physical treatment.

A summary of the ten years' experience at Chicago showed that during that time 31,257 children had passed through the court, being brought in on one of three charges, truancy, dependency or delinquency. The vast majority of these were put on probation. A study of the records of delinquents showed that over 80 per cent. of the boys put on probation were not again brought before the court up to January, 1908; but that only 55 per cent. of the girls were not again before the court up to July, 1909. These results indicate the great seriousness of the problem of dealing with delinquent girls. The inquiry also showed that of all the delinquent boys of 1903-4, who could be located, only 4.5 per cent. were found in institutions for criminals. It was revealed that some children had not been properly followed up by probation officers, that in some cases a proper balance had not been maintained by probation officers between the negative method of arousing fear and of making prohibitions and the positive method of appeal to better conduct, and that there was lack of coöperation among probation officers. In Chicago, the Juvenile Protective League has proven a most effective supplementary agency. It now has 18 paid workers; it enforces laws, forms boy's clubs and develops amusements. Recently the city has been divided into probation districts with officers of various creeds and nationalities assigned to each.

Among the problems now receiving wide discussion is the necessity of coördination in probation work. In New York and Massachusetts conferences of judges and probation officers have been introduced. A conference of judges and probation officers of the States of Ohio, Indiana, Illinois, Kentucky, Missouri, Pennsylvania and Michigan was held at Cincinnati, November 9-12. About the same time a similar conference at San Francisco led to the formation of a permanent association of probation officers. All of these conferences developed opinion favorable to the private trial as against the open one,

and favorable to intensive investigation of cases before they come to trial.

While a world-wide impetus was given to the juvenile court by its establishment at Chicago and thereafter in many American cities, the first known provision for a separate children's court was in South Australia in 1890. In 1894 such a court was opened in Toronto, Canada. The New South Wales Legislature established one in 1905, and in April, 1909, a new English law became effective. Up to the close of the year children's courts had been established at Birmingham and Edinburgh. The matter is being actively discussed in other European countries. During the year a representative body of lawyers submitted to the government specific requests embodying all the essentials of the juvenile court. While no Latin country has general provision for such courts, one has been introduced in Florence, Italy.

JUVENILE DELINQUENTS. See JUVENILE COURTS.

KAISER WILHELM CANAL. See CANALS.

KAMERUN. A German West African protectorate on the Gulf of Guinea. Estimated area, 190,600 square miles; estimated population, 3,500,000 (1128 whites in 1908, 971 of whom were Germans). Capital, Buëa. There are government and mission schools at Duala, Victoria, and Garua. Cacao and tobacco are grown, rubber and timber are exported, and a flourishing trade in ivory and palm-oil is carried on. Imports (1907), 17,297,000 marks (1 mark = 23.8 cents); exports, 15,891,000 marks. Total length of railways open and under construction, 320 miles. There are about 500 miles of telegraph lines, and a cable connects with Southern Nigeria. The budget for the fiscal year 1910 balanced at 7,208,366 marks (subvention, 5,000,000 marks). The military force numbers 149 Germans and 1300 natives. The protectorate is administered by a governor (1909, Dr. Seitz), aided by a government council of three.

KAMERUN, MOUNT. See EXPLORATION.

KAMPHAUSEN, ADOLF. A German Protestant theologian, died in September, 1909. He was born at Solingen in 1829, and received his education at the University of Bonn. As private secretary of Bunsen, he assisted the latter in his great work, *Bibelwerk*, and in 1863 he was appointed professor of theology at the University of Bonn. He took a prominent part in the revision of Luther's version of the Bible. Among his writings, which were voluminous, are *Das Lied Moses* (1862); *Das Buch Daniel und die neuere Geschichtsforschung* (1893); *Verhältnis des Menschenopfers zur israelitischen Religion* (1896), and *The Book of Daniel*, a critical history of the Hebrew and Aramaic text (1896).

KANSAS. One of the North Central Division of the United States. The total area is 82,158 square miles. The population in 1909, according to the returns of the Kansas State Board of Agriculture in that year, was 1,707,491.

MINERAL PRODUCTION. The production of coal in the State decreased from 7,322,449 short tons in 1907 to 6,245,508 tons in 1908, while the value decreased from \$11,159,698 in 1907 to \$9,292,222 in 1908. The main cause of the

decreased production was the increased production and consumption of oil and natural gas in Louisiana and mid-continent fields. The exceptionally warm weather which prevailed during the first three and the last three months of 1908 was also partially responsible for the decreased consumption of coal. In addition nearly all the larger mines were idle during April, May, and a part of June, pending a settlement of the wage scale. The shortage of labor which was experienced in 1907 in the coal mines of the State was not felt in 1908. The number of men employed increased from 12,439 in 1907 to 13,916 in 1908. There were 27 men killed and 70 injured in the coal mines of the State during 1908. The production of crude petroleum fell off in 1908 to 1,811,781 barrels from 2,409,521 barrels in 1907. The value decreased from \$965,134 in 1907 to \$746,695 in 1908. There were in the State 566 wells completed, of which 127 were dry. Kansas, with Oklahoma, forms the Kansas-Oklahoma field, which ranks second in the output of crude petroleum among the States. In the past few years, however, Kansas has declined in production, while Oklahoma has increased. The smelting of zinc is one of the important industries of the State, owing to the abundance of natural gas and the central location. Clay products are important. In 1908 they were produced to the value of \$2,248,805, as compared with \$2,370,058 in 1907. The cement industry has increased greatly within the last few years, amounting in 1908 to 3,854,603 barrels, valued at \$2,874,457, as against 3,353,925 barrels, valued at \$4,240,358 in 1907. The State ranks seventh in the production of cement. In the production of salt Kansas ranks fourth, being surpassed only by New York, Michigan, and Ohio. There were produced in 1908 in the State 2,588,814 barrels, valued at \$882,984, as compared with 2,667,459 barrels, valued at \$962,334, in 1907. Among other products are coal products, sand-lime brick, zinc red, and zinc white. The value of the mineral products of the State for the year 1908 was \$26,162,213, as compared with a value of the product for 1907 of \$29,932,608.

The production of petroleum and natural gas continued to decline in 1909.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops in the State in 1909, according to the figures of the United States Department of Agriculture, were as follows: Corn, 154,225,000 bushels, valued at \$83,282,000, from 7,750,000 acres; winter wheat, 85,478,000 bushels, valued at \$82,059,000, from 5,895,000 acres; spring wheat, 1,725,000 bushels, valued at \$1,656,000, from 150,000 acres; oats, 27,185,000 bushels, valued at \$11,690,000, from 964,000 acres; barley, 4,860,000 bushels, valued at \$2,576,000, from 270,000 acres; rye, 568,000 bushels, valued at \$426,000, from 40,000 acres; buckwheat, 14,000 bushels, valued at \$14,000, from 1000 acres; flaxseed, 385,000 bushels, valued at \$424,000, from 55,000 acres; potatoes, 7,189,000 bushels, valued at \$5,679,000, from 91,000 acres; hay, 2,652,000 tons, valued at \$15,912,000, from 1,829,000 acres. The wheat crop in 1909 was considerably larger than that of 1908, which was 76,808,922 bushels. The corn crop also was slightly greater in 1909 than 1908, when 150,640,516 bushels were raised. The oat crop increased from 16,707,979 bushels in 1908 to

27,185,000 in 1909, while the acreage increased from 831,150 to 964,000. The potato crop showed a considerable increase over the production of 1908, which was 6,419,685 bushels. Large quantities of sugar beets are raised in the State. Butter, poultry, and eggs are among the most important products. Horticultural and garden products are extensively raised. Kansas stands first among the States in the production and value of its winter wheat crop. Its production in 1909 was nearly double that of any other State in quantity and value. The number of farm animals in the State on January 1, 1910, were as follows: Horses, 1,187,000; mules, 154,000; milch cows, 737,000; other cattle, 3,260,000; sheep, 278,000; swine, 1,942,000. The wool clipped in 1909 was estimated at 1,283,840 pounds.

EDUCATION. The attendance for the school year 1909 was 392,009. The male teachers numbered 2474 and the female 10,511. The monthly salary of male teachers averaged \$60.48 and of female \$46.70. The total expenditures for education during the year were \$7,378,194. The consolidation of the rural schools, which was undertaken several years ago, has greatly increased the school population of the State. The number of counties in which high school education is made free has increased greatly in recent years.

FINANCE. The report of the State Treasurer for the biennial period 1906-08, showed a balance on July 1, 1907, of \$760,266. The receipts for the fiscal year ended June 30, 1908, were \$5,195,952. The expenditures were \$4,912,568, leaving a balance on July 1, 1909, of \$1,045,460. The tax levy for 1908 was \$2,208,322 on the assessed valuation of \$2,000,453,691. The permanent school funds of the State amounted to \$724,695. The bonded debt at the end of the fiscal year 1909 amounted to \$520,000.

CHARITIES AND CORRECTIONS. The charitable institutions of the State under its full control include the Topeka State Hospital at Topeka, the Osawatimie State Hospital at Osawatimie, the State Hospital for Epileptics at Parson, the State Home for Feeble-Minded at Winfield, School for the Deaf at Olathe, School for the Blind at Kansas City, State Orphans' Home at Atchison, Boys' Industrial School at Topeka, and Girls' Industrial School at Beloit. The total sum expended for the maintenance and repairs of these institutions in 1908, the latest year for which statistics are available, was \$147,156.

POLITICS AND GOVERNMENT. The legislature convened on January 12, and Governor Stubbs in his message recommended among other measures that should be passed by the legislature, a public utilities law. He urged the lawmakers to utilize the present railroad law as a basis and add the best features of the New York and Wisconsin laws. He praised the commission plan of government and declared that the city schools should be brought under the control of the commission. He praised the primary election law and declared it to be the most important triumph for the preservation of popular government which this generation has witnessed. He urged the consideration of some bank guaranty plan and demanded a flat two-cent passenger rate law, declaring the present statute a humbug. On January 27 Joseph L. Bristow was elected United States Senator by the legislature in joint session. Senator

Bristow was nominated at the primary elections of 1908. On February 9 a bill permitting the election of United States Senators by direct vote of the people was killed in the Senate, and on March 9 the Senate adopted the report of the Railroad Commission, which recommended that the two-cent fare bill be not passed. This ended the agitation for the two-cent fare bill in the session of the legislature. On February 18 the legislature passed a bill forbidding, under severe penalties, the sale, manufacture, or barter of any spirituous, malt, vinous or any other intoxicating liquors within the State. It repealed the provisions of the old law which permitted the sale of whiskey for scientific, mechanical, or medicinal purposes. Not even a druggist on a prescription can now sell any liquid containing alcohol. The drastic character of the law was said to have been due to friends of the liquor traffic, who hoped to make it objectionable on account of its severity. On March 6 an anti-cigarette law, which forbade the sale of cigarettes in the State, went into effect. A law was also passed on March 3 providing for a guarantee of bank deposits in the State. Attorney-General Wickersham in a written opinion held that national banks could not come under the guaranty law, notwithstanding that the latter specifically admits them so far as the State is concerned. Thereupon certain national banks of the State took the question of the constitutionality of the act into the Federal court, and in December Judge Pollock held that the law is unconstitutional, as class legislation, conferring certain advantages and privileges on one class of banks to the injury of others in competition with them. The State will apply for a rehearing before Judge Pollock, who in his opinion indicated that such a rehearing would be granted if the State desired to deny the allegations of fact contained in the petition of the national banks, which in the first hearing it had not contested. (See paragraph *Legislation* below). Measures were passed providing for government of cities of the first class and second class by a commission at the election of the voters within the city, including women. (See below.) In accordance with the provisions of this measure, Kansas City on July 14 voted to adopt a commission form of government, after having the year previous voted against it. On November 2 the city of Topeka voted to adopt the same form of government by a majority of 497. Other cities in the State which adopted the commission plan of government during 1909 were Leavenworth, Hutchinson, Wichita, and Coffeyville. A campaign for its adoption was pending in Emporia at the close of the year. On March 15 President Taft, in reply to a request from Governor Stubbs asking for his help in a controversy between rival political factions, sent a letter to the latter in which he declared that he would not permit himself to be used by any faction for the promotion of its political fortunes. See **ELECTORAL REFORM.**

OTHER EVENTS. The International Harvester Company on February 5 agreed with the Attorney-General and the Supreme Court that in addition to the fine of \$60,000 imposed upon it for its infraction of the anti-trust law and the limited ouster it will submit to the public control of its business in Kansas and the regulation of its prices by the Supreme Court or

a public utilities commission. The company is prohibited from making exclusive contracts with its agents; it is prohibited from discriminating against certain agents or purchasers of machines; it must pay the fine of \$80,000, and if the court or utilities commission find in the future that the company is charging too much for its machines or is arranging restrictions, then the court or the commission may make such orders as are necessary to bring about more equitable prices or conditions for handling the company's business in Kansas. On April 16 the Federal Grand Jury of Topeka returned an indictment against the Cudahy Packing Company of Kansas City, charging it with defrauding the government of \$80,000 by violation of the internal revenue law governing the manufacture of oleomargarine. As the result of a threat made by the State authorities that a receiver would be applied for if conditions were not improved, the Missouri Pacific Railroad urged a compromise with Governor Stubbs on November 25 with reference to improvement on the Central Branch. The Governor agreed not to ask for a receiver if the company would promise to spend \$750,000 on the Central Branch in 1910, lay 100 miles of new eighty-five pound rails and 140 miles of rock ballast.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those given below: An act was passed providing for the guaranty of deposits in State banks (see **BANKS AND BANKING**). A child labor law was enacted, prohibiting children under 14 years of age from working in any factory or workshop not owned by their parents, and from working in any theatre, packing house, elevator, or mill. All persons under 16 years of age are forbidden to work before 7 A. M. and later than 6 P. M. or more than eight hours a day. An act was passed providing for the government of cities of the first class (over 15,000) and cities of the second class (over 2000) by a commission, at the election of the voters within the city (including women). When adopted, the principle of the initiative and referendum may be enforced in the adoption of ordinances, and that of recall of its officers. A measure was enacted deterring the bringing of suits outside the State against persons living within the State. A measure was enacted prohibiting the sale of intoxicating liquors of all kinds, including alcohol, for all purposes, and prohibiting the drinking of such liquors on railway trains. The sale of cigarettes was prohibited, and the use of tobacco in any form by minors was forbidden. A measure was passed requiring all persons who seek to influence legislation during a session of the legislature to register with the Secretary of State, showing who their principals are, and the legislation they seek to influence. An act was passed enforcing the sale of pure foods, and an act fixing weights and measures. Maximum freight rates for railroads were established and an act was passed providing for good roads and for the supervision of roads by a State engineer. Measures were passed for the protection of people against tuberculosis and a measure was enacted providing for the suppression of tuberculosis in cattle. The code of civil procedure was revised, and an act was passed requiring railroads and other common carriers to obtain permission of the State Board of

Railroad Commissioners to issue stocks and bonds before so doing. A measure was enacted providing for the dissolution of corporations that abuse their privileges, by district courts on application therefor by the Attorney-General of the State, and for the winding up of their estate. This act also provides that the court may appoint a receiver to take charge of the estate of the corporation, not only during the litigation, but generally, and conduct its business under the direction of the court until such time as the corporate management shall change its policy and conduct its business according to its chartered privileges, when the court may return the management of the business to the corporation.

OFFICERS: Governor, W. R. Stubbs; Lieutenant-Governor, W. J. Fitzgerald; Secretary of State, C. E. Denton; Treasurer, Mark Tullay; Auditor, J. M. Nation; Attorney-General, F. S. Jackson; Adjutant-General C. L. Martin; Superintendent of Education, E. T. Fairchild; Superintendent of Insurance, Chas. Barnes—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Wm. A. Johnston; Associate Justices, Charles B. Graves, Silas Porter, Clark A. Smith, Rousseau A. Burch, Henry F. Mason and Alfred W. Bensen, all Republicans; Clerk, D. A. Valentine.

The State Legislature of 1909 was composed of 36 Republicans and 4 Democrats in the Senate, and 85 Republicans and 40 Democrats in the House. The State Representatives in Congress will be found in the section *Congress of the article UNITED STATES*.

KANSAS, UNIVERSITY OF. An institution of higher learning at Lawrence, Kans., founded in 1864. There were in attendance in 1909 2210 students, with a faculty of 125. There were in the library 65,000 volumes. During the year \$5800 was received for industrial fellowships. Among the changes in the faculty were the appointments of three full professors, one associate professor and six instructors. A school of education was established in 1909, as well as a department of correspondence and university extension. A separate department of journalism was also established. The first wing of a new administration building, to cost \$125,000, was erected. The endowment of the University is about \$150,000 and its income about 295,000, chiefly from the State. The chancellor is Dr. Frank Strong.

KEDA. A British possession on the western side of the Malay Peninsula, between Siam and the Federated Malay States. This territory was formerly under the suzerainty of Siam, which ceded its rights therein to Great Britain by a treaty concluded at Bangkok March 10, 1909 (see **SIAM**). Estimated area, 3045 square miles. According to native authorities the estimated population in 1905 was 140,000; in the following year the Adviser to the Keda government reported an estimate of 219,000, mostly Malays, although there is a considerable number of Chinese. The capital is Alor Star, which is in daily steamship communication with Penang. The principal product is rice; tapioca is also extensively cultivated, and concessions for rubber culture have been granted. The forests have been impoverished. The mineral resources have been very little exploited, though in the Kualamuda and Kulim districts

tin mining has long flourished. Estimated revenue (derived chiefly from opium) and expenditure for the fiscal year 1907 were 1,105,420 dollars and 1,031,878 dollars respectively (1 dollar = about 50 cents). Keda is nominally governed by a sultan, with a British adviser. Various branches of the administration, including the treasury, have been reorganized, and new civil and criminal codes have been formulated.

KEFIR FUNGI. A mixture of bacteria and yeast capable of causing lactic acid fermentation in milk. Kefir occurs as white, irregular roundish bodies, the size of a walnut, having a rough, furrowed surface, and a gelatinous consistency. The substance contains *Saccharomycetes cervisiae*, *Bacillus acidi lactici* and *Dispora Caucasia*. When added to milk, lactic acid is produced, as well as alcohol and carbon dioxide. The kefir fungi are used for the preparation of fermented milk, rendering the latter more easily digestible. Kefir kumys may be prepared by adding a few grains of kefir to fresh milk kept at a temperature of 70 to 80 degrees F. until fermentation becomes apparent by the rising of the grains to the surface. The grains may then be strained off and the milk left to itself, in well corked bottles, at the room temperature, to continue fermentation. See LACTIC ACID THERAPY.

KELANTAN. A British possession on the eastern side of the Malay Peninsula between Siam and the Federated Malay States. This territory was formerly under the suzerainty of Siam, which ceded its rights therein to Great Britain by a treaty concluded at Bangkok March 10, 1909 (see SIAM). Estimated area, 5500 square miles; estimated population, over 300,000, including 15,000 Siamese and 10,000 Chinese. The capital Kota Bharu, on the Kelantan River, eight miles from its mouth, has about 10,000 inhabitants. Agriculture is the chief industry, and about 450,000 acres (1907) are under cultivation. In 1907 some 500,000 cocoanut trees were productive, and 500,000 more had been recently planted. Over 10,000,000 coconuts a year are used for the manufacture of copra, which is an important export. Other products include rice (about 70,000 tons annually), betelnuts, rubber, rattan, bamboo, resin and gharu, tapioca, pepper, sugar, and corn. There is much grazing land, on which the state supports many cattle (90,000 head), buffaloes (20,000), sheep, and goats. Some metals are mined, especially gold, which was exported in the year 1906-7 to the value of 212,084 dollars. Besides gold, prominent exports are copra, betelnuts, paddy and rice, dried fish, cattle, hides, and rubber. The principal imports include cotton goods, provisions, kerosene, and timber. Total imports and exports in 1906-7 were valued at 1,388,435 and 1,153,948 dollars respectively. Kelantan has few roads, communication being effected largely by the rivers. There is direct steamship communication with Bangkok and Singapore. The estimated revenue in 1906-7 was 282,800 dollars, and in 1907-8 319,700 dollars. Revenue accrues from customs, port dues, taxes, royalties, and licenses. Kelantan is governed by a rajah (his office being hereditary), who is assisted by a British adviser.

KELLE, JOHANN VON. A German philologist, died February, 1909. He was born at Regensburg in 1829. He received his educa-

tion in Munich and in 1857 he was appointed professor of the German language and literature in the University of Prague. His work on Otfried includes: *Otfrieds von Weissenburg Evangelienbuch* (1856); *Christi Leben und Lehre, desungen von Otfried: Aus dem Althochdeutschen uebersetzt* (1870); and *Glossar zu Otfrieds Evangelienbuch* (1879). Not less important was his work on Notker. Its general aim was to prove that the writings bearing his name were not by a school or group of translators, but by Notker alone. These works include *Verbum und Nomen in Notkers Boethius* (1885); and *Untersuchungen zur Ueberlieferung Uebersetzung, Grammatik der Psalmen Notkers* (1889). He wrote also other works on general philological subjects.

KELLY, EDMOND. An American lawyer and Socialist, died October 4, 1909. He was born in 1841 and graduated from Columbia College in 1870. After graduating he was admitted to the bar and also studied at Cambridge University, England, where he graduated with honors in science. Soon after returning from England he removed his law offices to Paris, where he became known as an authority on international marriages. He was counsel to the United States Legation in Paris and represented several large business interests. In 1890 he returned to New York and at once became prominent as a municipal government reformer. He was the founder of the City Club and his efforts had much to do with the election of Mayor Strong. He made an attempt to organize the workmen into good government clubs, but this did not meet with success, and he returned to Paris, resuming his practice there. In 1905 he returned again to the United States. Mr. Kelly was greatly interested in socialistic work, especially in the tramp question, and one of his ambitions was to see tramp colonies established in New York State. He was the author of several books, most of them on socialistic questions. Among them were: *The Tramp Problem*; *Evolution and Effort and their Relation to Religion and Politics*; *Government and Justice*; and *Government or Human Evolution*. Mr. Kelly was counsel for Princess de Sagan (Anna Gould) in the divorce suit against her husband, Count Boni de Castellane.

KENNEDY, JOHN STEWART. An American banker and philanthropist, died October 31, 1909. He was born in 1830 at Blantyre, near Glasgow, Scotland, and received his elementary education in the Glasgow public schools. At the age of 13 he became an apprentice with a shipping firm in Glasgow, remaining there four years. For three years following he was in the employ of an iron and steel firm. During this time he carried on his studies, and at the age of 20 came to the United States. Here he traveled for two years for the iron business and then returned to Scotland. In 1856 he again came to New York City and engaged in the business of banking. For ten years he was a partner of M. K. Jesup and Co., and in 1868 established the firm of J. S. Kennedy and Co. This he conducted with great success for fifteen years, when he retired. Mr. Kennedy was widely known in religious, scientific, and charitable circles. His benefactions were large and varied. The best known perhaps was the gift of the United Charities Building at Fourth

Avenue and Twenty-second Street, New York City. This he gave in trust to four societies, the Charity Organization Society, the City Mission and Tract Society, the Association for Improving the Condition of the Poor, and the Children's Aid Society. The building is the charitable centre of New York City. In 1904 Mr. Kennedy gave to the School of Philanthropy of the Charity Organization Society \$250,000, and in 1905 he gave to Columbia University \$500,000, although he was not known as the donor of this gift until 1908. It was employed for the building of Hamilton Hall, the home of the collegiate department of the University. Mr. Kennedy's largest single gift, as far as is known to the public, was one of \$1,000,000 to the Presbyterian Hospital, New York, in 1908. He gave also \$400,000 for the Nurses' Home connected with that hospital. Other institutions which received gifts from him are the Lenox Library, the New York Historical Society, the Metropolitan Museum of Art, the Hospital for Ruptured and Crippled, Robert College and the American Bible House at Constantinople, and boards of Home and Foreign Missions and other boards of the Presbyterian Church. He was, at the time of his death, president of the Board of Trustees of Roberts College and chairman of the Presbyterian Hospital and United Charities Boards. Mr. Kennedy also took active interest in civic matters, and was a member of the Committee of Fifteen which, in 1901, was efficient in cleaning up the East Side of New York City. See GIFTS AND BEQUESTS.

KENNY, PATRICK L. A Roman Catholic priest and educator, Provincial of the Brothers of the Christian Schools, died November 26, 1909. The name by which he was known in the order was "Brother Joseph." He was born in Cleveland, Ohio, in 1857, and went to the schools conducted by the Brothers of Mary, Dayton, Ohio. He entered the novitiate of the Brothers of the Christian Schools at Westchester, N. Y., and after completing the course of study there taught in the grammar grades of the schools of Baltimore. He was Prefect of Discipline in Manhattan College for five years, and for the following five years was director of St. Peter's Parochial School in New York City. He then became professor of history in Tooting College, London. On his return to America he was appointed general inspector of all the Roman Catholic schools in New York City, and shortly afterwards was made director of Lasalle Academy. In 1907 he was appointed Provincial of the New York District, which extends from Halifax to Detroit. This is the highest local post in the Order. He was the representative of the American Brothers to three General Chapters of the Order held at the Executive House in Paris, and was also a representative of the Pope at the canonization of Saint Lasalle, the founder of the Order, and at the Jubilee of the present Pope.

KENTUCKY. One of the South Central Division of the United States. Its total area is 40,598. The population in 1900, according to a Federal estimate made in that year, was 2,406,859.

MINERAL PRODUCTION. Coal is the most important mineral production of the State and its mining has been a record of constant growth. In 1908 the total production was 10,245,553

short tons, valued at \$10,317,162. There was a decrease of 506,571 tons from the production of 1907, and in value of \$1,087,876. The year 1909 was the first in more than a decade in which the coal production was less than the preceding year. There were employed in the coal mines of the State during 1908 16,966 men, an increase of 25 over 1907. Kentucky is one of the most progressive States in the use of coal mining machinery. There were in 1908 759 coal mining machines in use. The State was comparatively free from labor troubles, there being only one small strike in January, which did not materially influence production. The State ranks twelfth in the production of crude petroleum. In 1908 there were produced 727,767 barrels, as compared with 820,854 barrels in 1907. The figures in the latter year, however, include Tennessee. The State produces a small amount of iron ore and has important manufactures of pig iron. There are, too, considerable manufactures of coke. The clay products in 1908 were valued at \$2,239,108, as compared with \$2,611,364 in 1907. The State is a large producer of mineral water, the production in 1908 being 797,186 gallons, valued at \$66,112. Among other mineral products are barytes, cement, lead, lime, sand, gravel, building stone, and zinc. There are also small quantities of infusorial earth, ochre and sand-lime brick. The value of the mineral products of the State for the year 1908 was \$16,141,956, as compared with a value of the product of 1907 of \$19,294,341.

The production of petroleum showed little change over 1908.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to the United States Department of Agriculture, were as follows: Corn, 103,472,000 bushels, valued at \$64,153,000, from 3,568,000 acres; winter wheat, 7,906,000 bushels, valued at \$8,776,000, from 670,000 acres; oats, 3,858,000 bushels, valued at \$2,355,000, from 40,000 acres; hay, 24,000 bushels, valued at \$18,000, from 1000 acres; rye, 165,000 bushels, valued at \$145,000, from 13,000 acres; potatoes, 3,680,000 bushels, valued at \$2,355,000, from 40,000 acres; hay, 653,000 tons, valued at \$7,771,000, from 480,000 acres; tobacco, 350,700,000 pounds, valued at \$37,174,200, from 420,000 acres. There was a great increase in the production of tobacco in 1909 over the preceding year, when only 195,600,000 pounds were produced. The acreage increased from 240,000 to 420,000, and the value from \$17,779,600 to \$37,174,200. This increase was due largely to the agreement arrived at in the latter part of 1908 between the tobacco growers and the American Tobacco Company as regards the price of tobacco. Excessive rain in the Burley district during the early part of the growing season prevented proper cultivation and damaged some tobacco planted on low lands. Later conditions, however, became more favorable. The average yield of 960 pounds per acre is 200 pounds larger than that of 1908. The price in the Burley district, 13.4 cents per pound, was 3.2 cents lower than that of 1908. The corn crop showed a marked increase over that of 1908, which was 84,823,000 bushels, while the acreage increased slightly. There was an increase also in the production of oats, which in 1908 amounted to 2,803,000 bushels. In both the

production and value of tobacco Kentucky ranks first, the value of the production being twice as great as that of North Carolina, which occupies second rank. It forms more than one-third the total for the entire country. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 407,000; mules, 207,000; dairy cows, 394,000; other cattle, 665,000; sheep, 4,240,000; swine, 989,000. Since 1901 there has been a decrease in the number of horses and swine and a large increase in the number of sheep. The wool clipped in 1909 was 4,026,960 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$110,300. There were 5,389,800 pounds of fish taken. The most important in value were catfish, of which 436,100 pounds were caught, with a value of \$26,130. Next in point of value were buffalo, 529,600 pounds, valued at \$21,450; German carp, 449,400 pounds, valued at \$17,970; drum, 354,400, valued at \$16,120; mussel shells and pearls, 3,413,000 pounds, valued at \$19,750. Among other fish taken were black bass, green or sunfish, paddle-fish, sturgeon, and suckers. There were 452 independent fishermen, and 103 wage-earning fishermen employed in the fisheries of the State. Five hundred and eleven boats were employed, valued at \$11,118.

EDUCATION. The number of children of school age in the State in 1909 was 739,836. There were enrolled in the public schools 519,192 pupils, with an average attendance of 311,192. The number of male teachers was 3892, and of female 7135. The total expenditures of the State during the year was \$5,174,297. The most important changes in the policy of education in the State during the past two years have been the establishment of county high schools in each county of the State and the adoption of a county school district law which makes the county the unit for taxation and for all other purposes, instead of the school district.

CHARITIES AND CORRECTIONS. The institutions under the supervision of the State Board of Control include the Kentucky Institution for Feeble-Minded Children, the Central Kentucky Asylum for the Insane, the Western Kentucky Asylum for the Insane, and the Eastern Kentucky Asylum for the Insane. For new equipment and permanent improvements of these institutions there were expended in the fiscal year ended June 30, 1909, \$160,534. The Board of Control in its annual report points out the need of a manual training and industrial department at the Kentucky Institution for Feeble-Minded Children.

POLITICS AND GOVERNMENT. On April 5, Boyd county, with a population of 40,000, voted for no-license by a majority of 235. As a result of this vote, 96 of the 119 counties of the State have no-license under the county unit law. On April 23 Governor Willson granted full and free pardons to former Governor W. S. Taylor, former Secretary of State Charles Finley, John L. Powers, Zach Steele, Holland Whittaker, and John Davis, who were all indicted for complicity in the assassination of Governor William Goebel in 1903, and who since that time have been fugitives from the State and under the protection of the Governor of Indiana, who has declined to honor requisitions issued to bring them to Kentucky for

trial. They were jointly charged with James Howard and Caleb Powers, who in 1908 were pardoned by Governor Willson. Governor Willson in granting these pardons reviewed all the troubles which led up to the killing of Goebel and stated that he granted the pardons because it would have been impossible to obtain a fair trial in the county where the crime was committed. He declared that from a fair, impartial, and thorough study of the reports of all the trials of these cases, he believed Governor Taylor had no part or guilty knowledge of the murder of Governor Goebel, and that he never would have been indicted but for the political excitement and the passion to prosecute every one whom excited imagination or selfish partisan interests could drag into the field of blame and abuse.

On April 5 the Supreme Court of the United States decided in favor of the Kentucky railroads, affirming the injunction order of Judge Cochran of the United States Circuit Court against the railway company in the fixing of interstate rates.

The night rider troubles in the State, which have been so acute in the past few years, were less serious in 1909 than in 1908. On April 20 a verdict for \$25,000 each was awarded to Lee Baker and Nat Frizzell, negroes, for damages on account of the Birmingham night rider raid in 1908. These men were driven out of Birmingham by the raiders on March 9, 1908, after having been severely whipped. On this raid, John Scruggs, an aged negro, and his daughter's infant child were killed with bullets. It was hoped that the conflict between the combined and the independent tobacco growers had been finally ended by an agreement made late in 1908, but in August the trouble broke out anew, when Clark and Scott, independent tobacco manufacturers of Scranton, Pa., filed suit in the Federal Court in Covington, Ky., against the Burley Tobacco Society, demanding \$135,520 in damages. The suit was filed under the Sherman Anti-Trust law, and the Burley society was charged with being a society in restraint of trade. They were charged with entering into conspiracy with certain growers to control the white Burley tobacco market in the United States. The plaintiffs alleged that in 1908 they were unable to buy the white Burley tobacco in the open market. On October 19 night riders became active again in the Burley tobacco region. Governor Willson at once ordered out the State troops and they were scattered in the counties where night rider warnings had been given.

On August 4 Judge Parker in the Circuit Court at Lexington declared the election for city officers held in 1907 void, on the ground of fraud and corrupt methods. The effect of this decision was to oust the mayor and three other officials from office. The officials, who were all Democrats, entered a motion for an appeal. All the town's twenty-six offices were contested by the Republicans, but twenty-two were dropped because it was impossible to get evidence. The court held that the Republicans did not prove that they were elected, but did prove that the election was void for fraud.

On August 5 the Lexington Railway Company was indicted by the Fayette county grand jury on five counts, for creating, maintaining, and suffering a public nuisance. The mayor

and other officials were also indicted for nonfeasance in office, for permitting the alleged nuisance. The grand jury found that the street railway company had operated its system for months without needed repairs and that the mayor had failed to compel the company to comply with its contracts with the city.

Breathitt county, the storm centre of the feud troubles of the State, was agitated during the year as a result of the quarrel between the factions of Edward Callahan and Govan Smith. There were various difficulties during the year, which culminated on June 7 in the shooting of Edward Callahan, the former sheriff of the county and for years the chief lieutenant of Judge Hargis, who in 1908 was killed by his son. Troubles became so acute in the county just previous to the election on November 2 that Acting Governor Cox sent the Lexington Company of State Guards into the county to prevent rioting at Jackson, where the situation was exceedingly critical. On the eve of election the home of Mrs. Mary Deaton, where the ballots for the precinct in Jackson had been housed for safekeeping, was burned. In another section of the city one person was killed and one was wounded. At Jellico, on November 2, James Ayres was killed and several others more or less wounded during an election riot at the voting place. A feud fight took place on August 8 in Knox county, in which three men were fatally injured.

The result of the election for November 2 was favorable to the Democratic party. In Louisville the Democratic candidate for mayor was elected by a majority of about 2500. The legislature was overwhelmingly Democratic.

OTHER EVENTS. On February 12 Lincoln Memorial Hall, at Hodgenville, the birthplace of Abraham Lincoln, was dedicated with imposing ceremonies. President Roosevelt was present and made an address. Addresses were also made by Governors Folk of Missouri and Willson of Kentucky. The hall is erected on the spot where once stood the log cabin in which Lincoln was born.

OFFICERS: Governor, A. E. Willson; Lieutenant-Governor, W. H. Cox; Secretary of State, Ben L. Bruner; Treasurer, Edwin Farley; Auditor, Frank P. James; Attorney-General, James B. Breathitt; Superintendent of Education, John G. Crabbe; Commissioner of Agriculture, M. C. Rankin; Commissioner of Insurance, Charles W. Bell—all Republicans.

JUDICIARY. Court of Appeals: Chief Justice, Thomas J. Nunn, Dem.; Justices, W. E. Settle, Dem.; H. S. Barker Dem.; Edward C. O'Rear, Rep.; John M. Lassing, Dem.; John D. Carroll, Dem.; J. P. Hobson, Dem.; Clerk, Napier Adams, Rep.

The State Legislature of 1909 was composed of 22 Democrats and 16 Republicans in the Senate, and 51 Democrats and 49 Republicans in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

KERENS, RICHARD C. An American diplomat, nominated in December, 1909, Ambassador to Austria-Hungary. He was born in Kilberry, county Meath, Ireland, in 1842, and was brought to the United States in his infancy. He was educated in the public schools of Jackson county, Ia., and enlisted in the Union army, serving throughout the Civil War. After the war, he

lived in Arkansas and became contractor for the Southern Overland Mail, controlling many frontier routes. During this time he resided in San Diego, California, but in 1876 removed to St. Louis, where he engaged in railroad operations and acquired many railroad interests. He was active in politics and was a member of the Republican National Executive Committee from 1884-1900, and from 1892 has been a member of the Republican National Committee. He served as one of the three United States Commissioners for the inter-continental railway commission from 1892 to 1900. He was three times voted for as Republican candidate for United States Senator.

KIAO-CHAU, or **KIAO-CHOW**. A harbor, town, and district on the east coast of the Chinese province of Shantung, constituting a German protectorate, leased from China for 99 years from March 6, 1898. Area of the district exclusive of the bay (about 200 square miles), 193 square miles; population, about 33,000 (white, 3858 in 1908). A neutral zone, or rather a German sphere of influence, surrounds the district and bay to a distance of 31 miles from high-water mark, embracing about 2500 square miles, with an estimated population of 1,200,000. At Tsingtau, in the fiscal year 1907, imports (exclusive of railway and mining materials) amounted to 82,374,000 marks, and exports 34,225,000 marks. A railway of 247 miles runs from Tsingtau to Tsinan, the capital of Shantung, with a branch line of 30 miles to Poshan. The railway is controlled by the Shantung Mining Company, which works coal mines at Fangtse and Poshan and iron mines at Tchín-ling-chen. For the year 1909-10 the administrative expenses of the protectorate were estimated at 12,352,597 marks. The administration is intrusted to a governor under the Navy Department.

KIDDER, BENJAMIN HARRISON. A medical director of the United States navy with the rank of rear-admiral, died October 27, 1909. He was born at Edgartown, Mass., in 1836 and was appointed assistant surgeon of the United States Navy in 1861. He served throughout the Civil War and was made surgeon in 1862. In 1887 he was appointed medical inspector and in 1903 medical director. He was retired in 1898 and was advanced to the rank of rear-admiral retired, on June 29, 1906, for services during the Civil War.

KING, WILLIAM FREDERICK. An American merchant, died February 19, 1909. He was born in New York City in 1850, and was educated in the public schools. He began as an office boy in a wholesale dry-goods house, and finally became a member of the firm of Calhoun and Robbins. Mr. King was, for several years, president of the New York Merchants' Association. He took an active part in local politics, and in 1908 filed charges of malfeasance in office against District Attorney W. T. Jerome. These charges were found without basis by R. L. Hand, a special commissioner appointed by Governor Hughes to hear the evidence. See NEW YORK.

KNOX, PHILANDER CHASE. An American public official, Secretary of State in President Taft's administration. He was born in Brownsville, Pa., in 1853, and graduated from Mt. Union College, Ohio, in 1872. He was admitted to the bar in 1875. In 1876-77 he was As-

sistant United States District Attorney for the western district of Pennsylvania. From this office he resigned and was, until his appointment as Attorney-General of the United States in 1901, engaged in the practice of law with James H. Reed under the firm name of Knox & Reed. In 1904 he was elected United States Senator from Pennsylvania. For the events connected with Mr. Knox's appointment as Secretary of State, see UNITED STATES, paragraphs *Cabinet and President Taft's Administration*.

KOCHER, EMIL THEODOR. A Swiss surgeon who was awarded, on December 9, 1909, the Nobel prize for medicine. He was born at Bern in 1841. He was educated in that city and after study in Berlin, Paris and London became professor of surgery in the University of Bern and director of the surgical clinic. His especial field is in operation on the thyroid gland and he first described and studied *cachexia thyreopriva*. He is the author of a great number of scientific works ranging from the diseases of children to antiseptic methods in surgery. He edited the *Encyclopædia of Surgery*, published in 1901.

KOREA. The peninsula between the Yellow Sea and the Sea of Japan, constituting formerly an independent monarchy, but, since the conclusion of treaties in 1904, 1905, and 1907, a Japanese protectorate. The capital is Seoul.

AREA, POPULATION, ETC. Estimated area, 84,420 square miles; estimated population, upwards of 10,500,000. The foreign population is small, excepting Japanese, who in September, 1908, numbered 123,655 (34,639 in Seoul, 23,885 in Fusan, 13,118 in Chemulpo, and 10,458 in Ping-yang). Seoul, the capital, has probably over 200,000 inhabitants. In general the Koreans are ancestor worshipers; among the upper classes Confucianism prevails. Through the efforts of Protestant (about 200 American and British) and Roman Catholic (about 60) missionaries Korea has a larger number of native Christians in proportion to population than any other Far Eastern country. The reorganization of the primary school system has been undertaken, and new industrial and technical schools are being established. In 1909 education appeared to be making great progress. Very many primary schools were established in that year. In the promotion of education, missionary enterprise is conspicuously instrumental.

PRODUCTION, COMMERCE, ETC. About 4,500,000 acres are under cultivation, the staple products being rice and other cereals, beans, cotton, tobacco, and hemp. The ginseng industry is controlled by the government and produces a considerable state revenue. Cattle raising is important. The exploitation of the mineral deposits, including gold, copper, iron and graphite, is developing. The value of the annual gold output exceeds \$1,000,000. The total of the foreign trade including gold, silver and specie, in 1908 amounted to 63,687,114 yen, as compared with 66,467,504 yen in 1907. The imports and exports of merchandise (excluding gold and silver) were valued in 1907 at 40,050,405 yen and 17,002,234 yen respectively; in 1908, 41,025,849 yen and 14,114,510 yen respectively. The principal imports are textiles and metal manufactures. The decrease in exports in 1908 was due mainly to a decline in rice and the non-export of ginseng. The prin-

cipal exports in 1908 were valued as follows: Rice, 6,482,000 yen; beans, 3,411,000; animals, 717,000; cattle hides, 520,000; fish, 238,000. Of the imports, Japan was credited with 59 per cent.; Great Britain, 16 per cent.; the United States and China, about 10 per cent. each. Of the exports, Japan received 77 per cent., and China 16 per cent.

The length of railways is about 688 miles; there are about 2900 miles of telegraph line, with some 7000 miles of wire; railways and telegraphs are owned by the Japanese government. The Japanese government has undertaken extensive highway construction and has projected several new railway lines.

ARMY. The ancient Korean army with the exception of one battalion of imperial guards was dissolved after the Japanese occupation and there are maintained two divisions of the Japanese imperial army in Korea with headquarters at Hao-seung and Yongsan. In 1909 a corps of gendarmes was formed amounting to 4000 men.

GOVERNMENT AND FINANCE. The Emperor in 1909 was Yi Chök, who was born March 25, 1874, and ascended the throne on the enforced abdication (at the instance of the Japanese) of his father, July 20, 1907. By a Japanese-Korean convention of February 23, 1904, the Korean government agreed to adopt Japanese advice in regard to administrative reforms. The Russo-Japanese peace treaty of September 5, 1905, and the Anglo-Japanese agreement of August 12, 1905, recognized Japan's paramount interests in Korea. The Japanese-Korean agreement of November 17, 1905, gave to the Japanese government the control of Korean foreign relations and provided that a Japanese Resident-General be stationed at Seoul. Another Japanese-Korean agreement, of July 31, 1907, made all administrative measures and all superior official appointments subject to the approval of the Resident-General. An agreement of July 24, 1909, provided that Japan take over the administration of justice and the management of prisons. Thus Korea has ceased to be an independent monarchy, and not the Emperor but the Japanese Resident-General is the real ruler. A permanent Japanese army is established in the country, and the police system is under Japanese direction. At the treaty ports the Japanese consuls have been replaced by Residents. The Japanese are establishing courts, abolishing extortion, and reorganizing the educational and financial systems; in fact, they are introducing reforms of every kind, at a cost to the island empire of about 25,000,000 yen yearly. The estimated revenue of Korea for the fiscal year 1910 was 21,434,723 yen; expenditure, 22,238,655 yen. The first Japanese Resident-General at Seoul was Marquis (later Prince) Ito Hirobumi (q. v.), who resigned and was succeeded in the summer of 1909, by Viscount Sone Arasuke.

HISTORY. Measures for the reform of the government continued during the year. At the close of Prince Ito's administration as Resident-General in 1909, the reforms included the abolition of the Department of Justice, the court becoming a branch of the Japanese Judicial Department, which would appoint the judges but would administer Korean laws. It was understood that while Koreans might be employed as judges, Japanese judges were to be installed if no competent Koreans could be

found. A codification of the Korean laws was soon to be made. The separate Korean department of the army was also to be abolished. The army had been disbanded in 1907. The Premier, Yi Wan Yon (q. v.) was assassinated December 22.

KWANG-CHOW-WAN. A territory on the Chinese coast, north of Hainan, leased to France in April, 1898, for 99 years. It was increased in November, 1899, by the addition of two islands commanding the entrance to the bay. Total area, 386 square miles; population (1906), 177,097. In 1906 imports and exports amounted to 2,359,248 dollars and 1,911,835 dollars respectively (the dollar is worth about 50 cents). The port is free. The territory is under the authority of the Governor-General of French Indo-China. The administrator-in-chief (1900) was M. Dufrenil.

KWANTUNG. A Japanese dependency, occupying the southern part of the Liaotung Peninsula (Manchuria), leased March 27, 1898, by China to Russia for 25 years and transferred by Russia to Japan December 22, 1905. Area, 1221 square miles; population in 1907, 405,685, of whom 381,130 were Chinese and, exclusive of army and navy, about 25,500 Japanese. In the southern part of Kwantung are Port Arthur and Dairen (formerly Dalny), which had respectively in 1908 5882 and 18,967 Japanese inhabitants. The principal products of the territory are corn, millet, rice and other cereals, tobacco, hemp, and vegetables. Since the Japanese occupation, various industries have been established, notably salt works, salt being abundant in the territory. Kwantung is a customs district (since July 1, 1907) of the Chinese Maritime Customs. The customs port is Dairen, which has a fine, ice-free harbor protected by a 1000-yard breakwater. The trade is largely with Japan. The budget for 1909-10 balanced at 4,879,489 yen. The Japanese Governor-General commands the troops, has a general direction of political and administrative affairs, and protects and controls the Japanese railways in Southern Manchuria.

LABOR, AMERICAN FEDERATION OF. No doubt the most important feature of the Federation's activity during 1909 was the continuance of the suits growing out of the injunction secured by the Bucks Stove and Range Company. This injunction, first issued by the Supreme Court of the District of Columbia, on December 23, 1907, and made permanent March 23, 1908, was in restraint of a boycott then being carried on by the Federation against that company. The Federation officials were then charged with violating the injunction, convicted late in December, 1908, and sentenced to imprisonment. Appeal was then taken to the Court of Appeals of the District of Columbia in two suits. One, to test the validity of the original injunction, was decided March 11 by a restriction of the extent of that order; the other, in the contempt proceedings, was decided November 2, the sentences of imprisonment being sustained. This latter case was then taken to the Supreme Court of the United States on a writ of *certiorari* granted on December 6. For further details see **INJUNCTION**.

A noteworthy phase of the development of the Federation during the past two years has been the organization of the Building Trades Department. Begun in 1907, this Department had, in June 1909, secured the affiliation of 20 inter-

national unions, 2 State councils, and 120 local councils, the latter including practically all the larger cities of the country. This movement followed the failure of the National Building Trades Council and the later Structural Building Trades Alliance to effect a large and solid organization. It resulted in the formation of building trades sections of the central labor unions of New York, Boston, Cleveland and other cities. This Department aims to so extend its affiliations that there will result a central body controlling every branch of the building trades. It performs the difficult and delicate task of adjusting trade disputes, both with employers and with other unions. The overlapping of work has been a constant cause of trouble for both public and employers; this department assists in defining the jurisdiction of each affiliated union. Progress in these trades, as in most others, has taken the direction of reducing the proportion of skilled to unskilled workmen; at the same time new trades have developed; both of these have raised frequent difficulties in the adjustment of the relations of men to employers and of trades to one another.

The Federation has striven to extend the use of the union label by its affiliated bodies. At the various annual conventions the value of union labels, buttons and store cards has been emphasized and resolutions adopted expressing the adherence of the membership to these devices. On March 29, 1909, following a call by President Gompers, 52 representatives of labor organizations using the union label in some form met in Washington, D. C., to form a Union Label Trades Department of the Federation. An attempt had been made previously to secure the adoption of a general label to be used by all the affiliated unions, but unsuccessfully. This was owing to the fact that those unions who had secured the general recognition of their label were unwilling to discard it for a new one. The new Union Label Department will endeavor to induce more unions to adopt a label, and to impress upon the public the advantages of using goods bearing the union label, sold by stores displaying union store cards, and delivered by carriers wearing a union button. It is interesting in this connection to note that no court decision adverse to the use of union labels has been made, although 42 States protect such from counterfeiting.

At the annual convention held at Toronto, Canada, during the week of November 15, Samuel Gompers was again unanimously elected president. The enthusiasm of this reflection was doubtless due in part to the impending sentence of imprisonment resulting from the violation of injunction. While there was no open opposition to President Gompers, as there had been in 1907, there does exist considerable dissatisfaction with his administration. His great ability as an organizer and political strategist are conceded, but it is believed by many that he has not taken up quickly enough with the newer methods of industrial consultation and arbitration but has clung too tenaciously to the more warlike methods of strike and boycott.

In his annual report President Gompers laid stress on the success of the policy of resistance to wage-reduction, since the crisis of 1907. He emphasized the importance of securing legisla-

tion from Congress defining the status of trade unions under the Sherman Anti-Trust act. He stated that few suits for recovery of damages had been brought since the decision of the Supreme Court in the case of *Loewe v. Lawlor*, (see *BOYCOTT*) but that the liability to fine to the extent of three-fold the damages and imprisonment in case of a strike was a great menace to the progress of trade unionism. In fact, he declared, the very existence of a labor union may now be considered as due mainly to the tolerance of governmental authority. Among other legislation that President Gompers urged as necessary were included an extension of the eight hour law so as to include all employees of the government and all employees of contractors and sub-contractors doing work on behalf of the government; an extension of the act of May 30, 1908, so as to provide automatic compensation for accidents to all employees of the national government and to all persons engaged in dangerous trades subject to the jurisdiction of that government and in interstate commerce; the erection of the Department of Labor as an independent department of the national government; and extensive regulation and restriction of immigration.

The convention adopted unanimously the report of a special committee on industrial education strongly favoring public provision therefor. It decided in favor of affiliation with the International Secretariat (see *TRADE UNIONS, France*). It indorsed the policy of making war upon the United States Steel Corporation (see *STRIKES AND LOCKOUTS*). It created increased facilities for the unionization of the unorganized workers. The next convention will meet at St. Louis in November, 1910. See *INJUNCTIONS, BOYCOTT, and TRADE UNIONS*.

LABOR LEGISLATION. The laws enacted by the 42 State legislatures holding sessions in 1909 with reference to several important features of labor legislation are here summarized:

INDUSTRIAL INSURANCE. The question of providing some systematic scheme of industrial insurance, whereby the losses due to accidents may be borne by the industry or by society at large, and whereby workmen may make provision for pooling those losses due to sickness, old age, invalidism, and unemployment, is receiving attention in all industrially developed communities. In New York, Minnesota and Wisconsin, commissions were appointed to report on this subject. Montana provided that a fund should be raised by employers contributing monthly one cent for each ton of coal mined and employees one per cent of their earnings to provide compensation in cases of accident in coal mining. Compensation ranges from \$3000 in case of death, to \$1000 for loss of an eye or limb, and to \$1 per day for twelve weeks for temporary disablement. Maine and New Jersey provided that life insurance companies may issue insurance to workmen at reduced rates where as many as 100 employed by the same firm take out policies. In Massachusetts it is now possible for ten per cent. of the employees of any firm to present a plan for compensation; if approved by the board of conciliation and arbitration it becomes operative. Under this law a pension fund was established by the Boston and Maine Railroad. See *OLD-AGE PENSIONS*.

EMPLOYERS' LIABILITY. The agitation for accident insurance as noted above has been at-

tended by the widest discussion of employers' liability. An extensive general liability law was enacted in Maine making the employer responsible for injury due to his own negligence or that of anyone of several classes of agents, provided the employee was exercising due care; the act applies to all trades, except domestic servants and farm laborers injured by a fellow servant and persons employed in logging. In New Jersey the employers' liabilities are increased by reducing the risks assumed by the employee to those that remain after the safety regulations of the State have been complied with. In Idaho the "fellow-servant" doctrine was modified by making the employer responsible for acts done by any employee under instructions or regulations; this applies to all transportation industries and includes railway engineers and train dispatchers. Similarly in Indiana, Massachusetts, Michigan, Minnesota, Mississippi, Ohio and Texas the doctrine of contributory negligence was so modified as wholly or largely to relieve railway employees engaged in running trains.

EMPLOYMENT BUREAUS. An employment bureau was established in Indiana under the Bureau of Statistics; and in Oklahoma under the Commissioner of Labor. In Michigan the number of free State bureaus was increased from 5 to 8. In Massachusetts classified lists of those wishing work must be supplied to towns and cities weekly. Several States restricted and regulated the activities of private bureaus. California and Missouri required that they be licensed, and provided for their inspection by the State Commissioner of Labor. Colorado reduced the license fees of private bureaus and at the same time reduced the fees they may charge. Illinois and Indiana passed elaborate laws for the regular inspection of private agencies and the penalizing of false entries or other frauds or violations of numerous regulations. Utah required the licensing of private bureaus, limited their fees to 8 per cent of the first month's wages, and penalized false entries and notices.

UNEMPLOYMENT. New York and Wisconsin provided for thorough inquiries on the state of unemployment. Texas and Utah provided for the punishment as vagrants of all persons physically able to work but idle and having no visible means of support.

HOURS OF LABOR. Arizona established an eight hour day for hoisting engineers at mines, furnace men at smelters, and laundry employees; California, for all persons working underground or at smelters; Idaho, for all persons engaged at ore reduction works of any description; Nevada, for employees in plaster or cement mills, or men in open-pit and open-cut mines; Washington, for coal miners, but not for those mine-employees engaged in transporting miners in and out of the mines; Wisconsin, for all persons employed on any public works; Wyoming, for all persons working underground and all those in mills for the reduction and refining of ore. Missouri repealed its eight-hour law in so far as it applied to telegraphers and train dispatchers. South Carolina modified its sixty-hour per week law for cotton mills by allowing eleven hours in a single day, or even more to make up lost time.

HEALTH AND SAFETY. In 1909 Arizona, California, Colorado, Connecticut, Illinois, Minnesota, Missouri, New York, South Carolina and

Texas enacted additional regulations for the protection of the health of employees. Particularly notable in this regard is the New York law providing, in a very detailed manner, the conditions under which work in compressed air may be carried on.

Additional requirements with reference to the fencing of machinery and other safeguards for life and limb were provided by Colorado, Illinois, and Michigan.

See CHILD LABOR and WOMEN IN INDUSTRY for legislation referring to child and female workers.

LABUAN. An island off the northwest coast of Borneo, belonging to Great Britain and administered by the Governor of the Straits Settlements. Area, 30½ square miles; population (estimated 1901,) 8411, mostly Malays from Borneo. Capital, Victoria, 1500 inhabitants. Extensive coal beds exist. The budget is included in that of Singapore.

LACROSSE. There was no apparent increase in the popularity of lacrosse in the United States in 1909. Canada still remains the chief centre of the sport. The contest in the Dominion for the championship of the National Amateur Lacrosse Union proved most exciting. The Montreals and the Shamrocks, both Montreal clubs, were tied at the close of the scheduled season with 9 victories and 3 defeats each. In the play-off the Montreals won by a score of 5 to 1. The Westminster team which held the Minto Cup successfully defended it against the Regina Club and was therefore again ranked as the world's championship team. In England Oxford and Cambridge played their seventh annual contest, the latter winning by a score of 8 to 6. The championship of the United States Intercollegiate Lacrosse League was won by Johns Hopkins University in the Southern Division, while Harvard and Columbia tied for first place in the Northern Division. The standing of the teams in the Southern Division was: Johns Hopkins, won 3 games, lost 0; Swarthmore, won 2, lost 1; Stevens Institute, won 1, lost 2, and Lehigh, won 0, lost 3. In the Southern Division, Harvard and Columbia each won 2 and lost 1; Hobart won 1, lost 2, and Cornell won 1, lost 2.

LACTIC ACID THERAPY. Since the publication of Elie Metchnikoff's book, *The Prolongation of Life*, with its attempt to establish a definite causative relation between intestinal putrefaction and bodily decay, and its insistence upon the value of fermented sour milk as a preventive of such putrefaction, many observers have studied the subject. Metchnikoff's theory is briefly that senility is hastened by autointoxication arising from the absorption of the products of intestinal putrefaction; that the anaerobic group of bacteria, chiefly *B. aerogenes capsulatus* (*B. Welchii*), are mostly engaged in producing this putrefaction; and that the ingestion of lactic acid producing bacteria, preferably *B. bulgaricus*, will counteract such putrefaction and thus prolong the span of life. Among other investigators, Cohendy took cultures of a bacillus, isolated from the Bulgarian fermented milk, *Yahourth* or *Yoghurt*, and was able with these to reduce intestinal putrefaction materially. He found the bacillus in the faeces for several weeks after discontinuing its administration. Lissier used cultures of Kozai's *B. acidiparalactici* with success; Herter fed

dogs with *B. coli* and *B. proteus* and found that putrefactive products increased in the urine, but these were reduced by feeding the animals with lactic acid bacilli. The bacillus recommended by Metchnikoff, and named by him, *Bacillus bulgaricus*, is widely distributed in nature, occurring normally in human faeces, in the faeces of cows and horses, in many sour acid and aromatic foods, in normal saliva and gastric juice, in various fermented milks, in ordinary milk and in soil. It is best cultivated in milk, or media composed of whey, peptone, and glucose. In milk it may produce more than three per cent. of acidity; the acid being composed approximately of 6 per cent. volatile and 94 per cent. lactic acid. Its disagreeable taste led Metchnikoff to advise the use of the paralactic bacillus (*Streptococcus lacticus*) in combination with the Bulgarian bacillus. Herter and Kendall, as the results of their experiments assume that the lactic acid of sour milk enforces the enfeebled action of the natural intestinal lactic acid bacteria, and increases the amount of acid produced when it exists in insufficient quantities, and thus assists the intestine to overcome and eliminate "wild races" of bacteria which may have become established in the intestinal tract.

Commercial buttermilk varies in acidity and fat contents. If butter is made from sweet cream, the buttermilk contains very little acid. The amount of fat in buttermilk depends on the thoroughness of churning. The souring of the cream previous to churning may be due to natural processes, or brought about by the use of "starters" or artificial cultures. In the natural process *Streptococcus lacticus* is the usual agent producing acidity; but may fail to give good results if the bacteria are present in excessive quantities. With the commercial "starters," unpleasant flavors are avoided, and the cream may be pasteurized before inoculation, thus killing off foreign bacteria. Buttermilk is sour milk from which the butter fat has been partially removed. Most commercial buttermilk is made by inoculating separator milk or skimmed milk with "starters" and churning after coagulation has taken place. A pleasant and wholesome beverage may be made at home by keeping good milk at the room temperature for 2 or 3 days and then thoroughly shaking it. Of late years a number of preparations for the home production of buttermilk have been marketed under trade names, such as Lactobacelline, Fermentlactyl, Keflac, Yogurt, Lactone, etc. As to the therapeutic value of sour milk the testimony is not at all convincing. Appendicitis, tropical dysentery, typhoid fever, and other intestinal diseases are said to have been cured or benefited; in particular intestinal putrefaction, intestinal autointoxication, and certain nervous and digestive derangements, are reported to be favorably influenced. For a full discussion of the subject, see an article entitled "Lactic Acid as an Agent to Reduce Intestinal Putrefaction," by P. G. Heineemann, Ph. D., in the *Jour. of the Am. Med. Assoc.* for January 30, 1909.

LADRONE ISLANDS, or MARIANNE ISLANDS. A group in the Pacific, north of the Caroline Islands. Excepting Guam (q. v.), they belong to Germany, being administratively attached to German New Guinea, and have an area of 250 square miles and a population (1904) of 2646. The local seat of government

is on the island of Sarpan. Imports and exports in 1906 amounted to 238,000 marks, and 56,000 marks respectively.

LAFAYETTE COLLEGE. An institution of higher learning at Easton, Pa., founded in 1832. The attendance in 1908-9 numbered 453 undergraduate students, 16 graduate students, and 44 members of the faculty. There were 35,000 volumes in the library. During the year \$47,487 were received towards the endowment. The total productive funds of the college amount to about \$790,000. The total income is \$160,000. The president is Rev. E. D. Warfield, LL. D.

LAFFAN, WILLIAM M. An American newspaper publisher and editor, and art connoisseur, died November 19, 1909. He was born in Dublin, Ireland in 1848, and was educated by private tutors and at Trinity College, Dublin. After his graduation from Trinity he studied medicine at St. Cecilia's School of Medicine. When he had completed his early studies he became artist to the Pathological Society of Dublin as a result of his interest in art and kindred subjects. The possibilities of journalism attracted him strongly and in 1868 he went to San Francisco where he began newspaper work as a reporter. He became city editor of the *San Francisco Chronicle*, and later managing editor of the *San Francisco Bulletin*. From San Francisco he went to Baltimore early in 1870 and worked as a reporter and editor until he became editor and half owner of the *Baltimore Daily Bulletin*. He subsequently acquired full ownership of this paper and of the *Sunday Bulletin*. To the paper he contributed illustrations as well as stories and editorials. After a short time the *Daily Bulletin* was merged in the *Evening Bulletin* and in this paper Mr. Laffan engaged in a fight against the political ring which at that time controlled the city government of Baltimore. For a short time following he left newspaper work and became general passenger agent of the Long Island Railroad. He attracted the attention of Charles A. Dana and in 1877 became connected with the *New York Sun* as a general writer. He devoted a considerable part of his work to essays and criticisms on art. In 1881 he became artist of Harper and Brothers, and remained in that capacity, and as the agent of Harper and Brothers, London, for three years following. He became in 1884 publisher of the *Sun*. He started the *Evening Sun* in 1887 and in 1900 he purchased from the estate of Charles A. Dana its interest in the *Sun* and was elected president of the Sun Printing and Publishing Company, continuing as the active head of this newspaper until his death. He founded and was the head of the Laffan News Bureau, which distributed news to different newspapers in the country. Mr. Laffan had wide interests outside of journalism. He modeled in clay, painted in oils and water colors and had considerable skill in etching. He was one of the most active of the trustees of the Metropolitan Museum of Art and was a member of its Committee on Acquisition. He was an expert in porcelains, and in 1905 he edited the catalogue of the Chinese Porcelain in the Morgan Collection at the Metropolitan Museum of Art. He edited also in 1906 *Chinese Porcelain in the Metropolitan Museum of Art*. In the same year he edited *Oriental Porcelain*. Among his other writings was a

work on *American Wood Engravers*, which was published in 1883. He had a keen interest in and knowledge of archaeology, pottery, antique art and kindred subjects. Mr. Laffan was one of the founders of the Tile Club, afterwards merged in the Salmagundi.

LAGERLÖF, SELMA. A Swedish author, awarded on December 9, 1909, the Nobel prize for literature. She was born at Marbackagord, Wermland, in 1858. She began her career as a teacher and was engaged in this work from 1885 to 1895. Her first work was *Gösta Berlings Saga*, which was a collection of old Swedish stories, published in 1891. It was immediately successful and placed the author at once in the foremost rank of Scandinavian writers. In 1897 appeared her great romance, *The Miracles of Antichrist*, which won immense praise for the brilliancy of fancy and glowing portrayal of country life, and sharp detail of character which characterized it. Among other works are *From a Swedish Homestead* (1901); *Jerusalem* (1901-2); *The Christ Legend* (1904).

LAKE CHAMPLAIN CENTENARY. See CENTENARIES AND ANNIVERSARIES.

LAKE MOHONK CONFERENCE. See ARBITRATION, INTERNATIONAL.

LAMOREUX, SILAS WRIGHT. An American public official, died August 5, 1909. He was born in Madison county, N. Y., in 1843 and received his education there. In 1852 he removed to Wisconsin. At the outbreak of the Civil War he enlisted in the Wisconsin volunteers, serving throughout the war. He served one term as State Senator and was County Judge from 1879 to 1893. From 1893 he was Commissioner of the General Land Office of the United States.

LANDS, PUBLIC. The public lands of the United States, not including Alaska, included in 1909, 731,354,081 acres, which is confined largely to the mountain ranges and the arid and semi-arid plains, and some lands within the Indian reservations. In Alaska there are 368,035,975 acres of undisposed land. The public domain in 1860 included 1,055,911,288 acres. Much of this land was granted to railways and new States, when admitted, for schools and other purposes.

A revision of the principal land statutes, which were enacted over twenty-five years ago, has long been considered necessary, and Mr. Ballinger, Secretary of the Interior, in his annual report strongly recommends such revision. These acts include the Homestead act, the Preemption and Timber Culture act, the Coal Land and the Mining acts. As a result of defects in these laws, a large part of the natural resources of the country passed into the hands of land pirates and speculators who had no view to development. Millions of acres of timber and other lands have been unlawfully obtained and actions to recover such lands have in most instances long since been barred by the statute of limitations. Under the administration of President Roosevelt, Secretaries Hitchcock and Garfield vigorously prosecuted the perpetrators of many of these frauds and secured the conviction of hundreds. As a result of this awakening the public mind has grasped the importance of safeguarding the further disposition of our natural resources in the public lands in the interest of the public good as against private greed.

Mr. Ballinger points out the necessity of classifying the public lands into various clearly defined divisions, according to their principal value or use. They have generally been classified as agricultural, mineral, desert, timber and coal lands. Special legislative authority should be given to classify and segregate public lands into well defined divisions according to their greatest apparent use, with the continuing power of reclassification to meet changed conditions and the increased knowledge of their character which may necessitate the transfer of lands from time to time from one class to another. Full legal effect should be given such classification when made so as to prevent entries under laws applicable to one class of land belonging to another class except after application for and a review of the classification. The policy of leaving to the self-interest of applicants the option to claim a particular tract of land as more valuable for mineral, agriculture, timber, phosphate, oil or gas, or for power sites, has resulted in the greater part of the difficulties of the Interior Department in administering the public domain.

COAL LANDS. The Secretary of the Interior recommends that the present coal land laws respecting the States and Territories, as well as Alaska, should be supplanted by an act fully meeting existing as well as future conditions. He declares that the inducements for much of the fraud and crime, both constructive and actually committed under the present system, can be prevented by separating the right to mine from the title to the soil. The surface would thereby be opened to entry under other laws according to its character, and subject to the right to extract the coal. He advocates the leasing or sale of the coal deposits in the lands, subject to forfeiture for failure to exercise the rights guaranteed under such reasonable regulations as may be imposed. These suggestions apply also to the disposition of oil and gas fields in the public domain. On April 10, 1909, Mr. Ballinger changed the system of classification and valuation for the disposition of coal lands under existing laws. The coal deposits are divided into four classes in accordance with their fuel value and the thickness and depth of the coal beds. The prices of the land are determined on the basis of an estimated tonnage and range from one-half a cent to three cents per estimated ton in accordance with the quality, thickness and situation of the coal. Up to November 1, 1909, 31,872,171 acres of coal land had been withdrawn from coal entry pending examination and classification, while 11,862,576 acres had been withdrawn from all entry pending classification. Field work on these has been completed. There had been classified and restored 35,915,255 acres. These coal lands were in the States of Wyoming, Washington, Utah, Oregon, Montana, New Mexico, Colorado, South Dakota and North Dakota. As a result of this new basis there was a gain in the value of the lands from April 10 to October 1 of \$94,810,536.

SEMI-ARID LANDS. Congress by an act of February 19, 1909, authorized the classification and entry of semi-arid lands. The Department of the Interior through the Geological Survey has, under this act, classified 172,097,643 acres. The larger part of this land is in Arizona, Colorado, Montana, Nevada, and New Mexico. The Secretary of the Interior withdrew

temporarily, for the purpose of submitting the subject to Congress for new legislation, areas of oil lands in Wyoming, California, Utah and Oregon amounting to 3,621,062 acres. No legislation exists for the entry of oil and gas lands other than the general mining laws of the United States, which are not adaptable to the disposition of lands containing mineral oils and gas. Under President Roosevelt's administration there were temporarily withdrawn, pending action of Congress, 4,702,520 acres of land in the States of Wyoming, Idaho and Utah, as containing phosphate deposits. These lands were being reexamined in 1909 by the Geological Survey with a view to eliminating all tracts not containing such deposits.

TIMBER LANDS AND RECLAMATION. The Secretary of the Interior recommends the repealing of the so-called Timber and Stone acts of June 3, 1878, and August 4, 1902, and the enactment of a law providing for the disposition of all the remaining timber upon the public lands separately from the soil, and for the disposition of the land after the timber is removed under appropriate agricultural or mineral laws. He also recommends amendment to the act of August 14, 1904, called the Carey act, so that the Secretary of the Interior may, upon application of the State or Territory, withdraw areas of the public lands that appear to be susceptible of reclamation under this act pending examination of the land by State officials and the preparation and filing of their map and plan of irrigation if the State determines to attempt the reclamation.

POWER SITES. There were withdrawn from all forms of entry in 1909 approximately 603,355 acres of land, covering all locations known to possess power possibilities on unappropriated lands outside of national forests, pending new legislation by Congress to prevent the acquisition of power sites on the public domain by private persons or corporations with a view to monopolizing or adversely controlling them against public interest. The Secretary of the Interior recommends enactments that will authorize the classification of lands capable of being used for water power development and to direct their disposal through the Department of the Interior.

GENERAL LAND OFFICE. The area of public lands included in original entries and filings during the fiscal year 1909 was 19,982,503 acres, which was an increase of 802,146 acres over the area entered during the year 1908. The area patented was 13,072,377 acres, of which more than half was disposed of under the Homestead law. The total cash receipts from the sales of public lands, including fees and commissions, was \$9,235,227. There were received, in addition, from the sales of Indian lands, \$2,651,051. The appropriation of \$1,000,000 for the protection of public lands, timber, etc., became available March 4, 1909, and prompt measures were taken to expedite the work to be carried on under said appropriation and to secure prompt action upon pending cases. As a result of the investigation, 1,282,201 acres were restored to the public domain during the past year. During the year 115 convictions were secured in criminal cases for fraud in obtaining lands.

In August 30,000 tracts of land on Indian reservations in Idaho, Montana and Washington were opened to settlement. Over 200,000

persons registered at Spokane, Washington, Missoula and Kalispell, Montana.

ALASKA COAL LANDS. The matter of the disposition of these lands which led to a controversy involving R. A. Ballinger, Secretary of the Interior, and others, will be found discussed under the article UNITED STATES, section *Administration*. It is the intention of this article to give a brief account of the conditions which led up to this controversy.

Coal in Alaska in large quantities was first discovered in 1901 along the Bering River. It exists here in great masses, and it is estimated that over a billion tons lie undeveloped in this region alone. In 1900 Congress had voted to extend the mineral land laws to this district, but these laws provided only for giving away lands which had been surveyed by the government. The lands in question had never been surveyed and therefore the laws had no effect. An English syndicate, however, under the name of the Pacific Oil and Coal Company, secured from individual locaters a nominal claim to fifteen square miles of this district, estimated to contain more than 200,000,000 tons of commercial coal. News of the existence of coal in vast quantities in the meantime had penetrated into the United States, and men with powers of attorney arrived in the district. These persons had the names of numbers of individuals who had assigned to them their rights to file on coal claims. One of these representatives was Clarence Cunningham. He came as agent of a syndicate of business men of Washington and Idaho. He and his associates filed claims on eight square miles of coal lands in the Bering field in which were in sight not less than 90,000,000 tons of high class commercial coal. Other syndicates and groups of persons filed claims in 1903-5, and by the latter date the Bering River field was practically covered with locaters. A second field, in the meantime, had been located about 200 miles up the coast at Matanuska River. Here were two large syndicates, one connected with the projected Alaskan Central Railroad, and the other, the largest of all the syndicates, the Michigan-Alaska Development Company. These also filed their claims by means of a power-of-attorney man and they represented hundreds of claims in all parts of the country. Altogether the claimants numbered about 950. These claims were, of course, practically valueless until new laws were passed which would make them valid. In 1903 a committee of the United States Senate made a careful investigation of this country, holding frequent hearings. One of its chief recommendations was for the correction of the abuse of the location of claims in mining districts by powers of attorney. No results came from the report of this committee, as Congress did not take action on its recommendations. In 1904, however, a law was passed allowing land to be taken over by persons who had surveyed it at their own expense. It was thought at the time that this placed the Alaska coal lands upon the same footing as the government coal lands in other parts of the country. The wealthy men who composed the Cunningham syndicate were the most active in procuring the passage of this law.

The coal land laws of the United States which were passed in 1873 provided that the government may grant its coal lands only to individuals or to small associations. These

measures were designed to keep lands containing coal out of the hands of corporations, and corporations up to 1904-5, therefore, were obliged to obtain their coal lands from assignments of individual claimants. This led to widespread frauds, and in 1907 Mr. Ballinger, who was at that time Commissioner of the General Land Office, declared that the process was a national scandal. It was thought by the claimants that, under the laws passed in 1904, this procedure would still be applicable; that is, that land might be obtained in large areas through assignment by individual holders. The attorney for the Cunningham claimants inquired of the Land Office whether four locaters could join in taking 640 acres in this territory and he was informed that this was not within the meaning of the law, and that such action could not be taken. New affidavits were therefore made out for the Cunningham claimants by which they relied upon the land as individuals.

At this time began a general prosecution by the government of perpetrators of land frauds in the Northwest, which resulted in the conviction of Senator Mitchell of Oregon and others. This agitation in 1905-6 made it difficult for the Alaska coal claimants to make progress. The Cunningham syndicate, however, continued to develop its claims, spending large sums of money on them. In 1906 the government began attacking the methods of taking over coal lands in Colorado, Wyoming and other parts of the West, and in the fall of that year President Roosevelt withdrew all remaining coal lands in the United States from public entry on the ground that it was time to make a general revision of the mineral land laws. On November 12, 1906, an executive order was issued holding up all Alaskan coal lands from claimants. It is alleged that about this time the Guggenheim family, which had secured control of valuable copper mines in southern Alaska and was constructing a railroad to these claims, began to obtain possession of the coal fields. A change was made in the route of the road which the Guggenheims had been building so that it would make the coal fields accessible. The English syndicate, referred to above, had obtained control of the only available terminus, at Cordova, and the Guggenheims purchased control of this route from the syndicate. On July 20, 1907, the representatives of the Cunningham claimants are said to have delivered to Daniel Guggenheim, the head of the American Smelting and Refining Company, a proposal to form a coal company with \$5,000,000 capital.

Claims of fraud in the taking up of the Alaska coal lands had been made as early as 1905, and a special agent was detailed to investigate. He reported a number of fraudulent schemes upon the part of claimants, but no action was taken by the Land Office until 1907. In June of that year Horace T. Jones was detailed to make a further investigation. He advised a thorough investigation by a competent man and called especial attention in his report to the Cunningham and English syndicates and other groups of claimants. In December, 1907, Commissioner Ballinger, in his annual report, made the attack previously mentioned upon the methods used by coal speculators and railroads of the West in securing coal. In the same month he detailed to investigate the validity of similar transactions in the Alaskan coal

fields Louis R. Glavis, a special agent of the field service of the General Land Office.

In February, 1907, while it was generally believed that the government would take no money in payment for Alaska coal lands on account of President Roosevelt's order, the Cunningham claimants tendered payment for their claims to the receiver of the Land Office at Juneau, through whom they obtained a special ruling from the General Land Office at Washington, that while no more coal could be filed upon in Alaska, those who had filed in good faith upon land before the order of November, 1906, could proceed to make purchase and entry of the land. The purchase and entry are made at the time of filing proof and payment, which, in Alaska, may be four years after the location is made. Members of the syndicate swore that they had made their entries in good faith for their individual benefit, and paid \$10 an acre to the Land Office, from which they received their receipts. There remained only one final document to be obtained, the patent to the land. This was held up, however, pending the investigation into alleged frauds in acquiring the lands. Mr. Glavis had been instructed on December 28, 1907, to investigate all the Alaska coal cases for fraud. On January 4, 1908, a telegram was sent by Commissioner Ballinger to the special agent in Alaska, asking him to send the "plats" of the Cunningham claims required for issuing patent, which was the last act of approval necessary from the government for these claims. On January 7 the Assistant Commissioner informed Glavis that the Cunningham claims had been approved for patent. Glavis at once protested on account of evidence of fraud which he claimed to have against them. The order to complete the patent was at once revoked in the Land Office.

On May 28, 1908, a bill was passed by Congress making certain modifications in the coal land laws. By this law coal claimants did not need to show that up to the time of the final entry of the land they had intended to take it for their own use. They need only prove that they had intended to take it for individual use when they found it and located it. In March, 1909, Mr. Ballinger became Secretary of the Interior in the cabinet of President Taft. He at once asked Mr. Glavis to make complete reports of his examination of the coal cases, and Glavis was informed in the latter part of April that the investigation must be concluded by July 1. Glavis insisted that this was impossible if a thorough investigation was to be made. He returned to Washington in May and, with H. H. Schwartz, Chief of the Field Service, prepared a letter under Secretary Ballinger's direction, summarizing the evidence obtained against the Alaska coal claim, and sent this to Attorney-General Wickersham for a ruling on it under the law of 1908. Immediately after this, however, Mr. Glavis was informed that the Interior Department would decide on the law in its own legal department, and on May 19, 1909, the First Assistant Secretary of the Interior gave a decision which ended as follows: "In passing upon entries sought to be perfected under the act of 1908, where the only objection thereto is an arrangement or agreement of the character specifically described in your letter, the same might and should be accepted and passed to patent." This was contrary to the opinion held by Mr. Glavis, and on

June 12, 1909, the Attorney-General rendered a decision sustaining him. This opinion was secured by direct appeal of Mr. Glavis, on his own responsibility, to the Attorney-General, over the head of the law office of the Department of the Interior. The Land Office demanded an immediate trial of the Cunningham group of claimants, to which Mr. Glavis replied that it would be impossible to try them without having evidence obtainable on the ground at Alaska, which, up to that time, there had been no opportunity to get. Mr. Glavis was superseded by James M. Sheridan, who reported that the cases could not be heard until the fall of 1909. Investigations in the claims were being carried on at the end of the year. Mr. Glavis laid his case before President Taft, with the result that he was dismissed from the service at the request of Secretary Ballinger.

LANE, ELINOR (MACARTNEY). An American novelist, died March 15, 1909. She was born in Maryland. She began to write stories of Southern life at the age of 16. She married, in 1891, Dr. Francis Ransom Lane. She wrote *The Mills of God* (1901); *Nancy Stair* (1904); *All for the Love of a Lady* (1906); *Katrina* (1909).

LANG, BENJAMIN JOHNSON. An American musician, died April 4, 1909. He was born in Salem, Mass., in 1837. His father was an organist and piano teacher, and Lang early showed great aptitude for music. In 1855, after receiving instruction in Boston, he went abroad, where he studied for three years with Liszt, Jaell and others. On his return to Boston he soon became famous as a teacher. He became conductor of the Apollo Club in 1868, of the Cecilia Society in 1874, and of the Handel and Haydn Society in 1895. From 1885 he was organist of King's Chapel. Mr. Lang was well known abroad and had a wide acquaintance with notable foreign musicians.

LANG, JOHN MARSHALL. An English educator and clergyman of the Church of Scotland, died May 2, 1909. He was born at Glasford, Lanarkshire, in 1835, and was educated at Glasgow University. He was deputy to the United States in 1872, and to Amsterdam in 1887. In 1893 he was Moderator of the Church. He was Baird lecturer in 1900-1, and served on several important ecclesiastical boards. From 1900 to his death he was vice-chancellor and principal of Aberdeen University. Among his published works are: *Heaven and Home*; *Life: Is it Worth Living? Homiletics on St. Luke's Gospel*; *The Anglican Church*; *The Church and its Social Mission*.

LAOS. A French protectorate in French Indo-China (q. v.). Area, 111,940 square miles. Population (1906), 663,727. Capital, Vientiane. Within the protectorate are the three protected states of Luang Prabang, Barsac, and Muong Sing. Laos is the largest of the five French Indo-Chinese territories, but is almost entirely undeveloped and lacks population. It is practically inaccessible except by means of the Mekong River. The soil is fertile, producing rice, cotton, indigo, fruits, tobacco, and teakwood. Concessions have been granted to several French companies for the development of the gold, tin, and lead mines. A telegraph line connects Hué, in Annam, with the towns on the Mekong, and these with Saigon. The present King is Som-Deck Phra Chao Sisawong. The

cost of administration is borne by Cochin-China (to the extent of 6-13), Tongking and Annam (5-13), and Cambodia (2-13). The Resident-Superior is M. Maché.

LAURIE, SIMON SOMERVILLE. A Scotch educator and philosopher, died March 2, 1909. He was born in 1829 in Edinburgh and was educated at the High School and University of that city. For five years he taught on the Continent of Europe and on his return to Scotland held many important educational positions. He was secretary and visitor of schools on the educational committee of the Scottish Church in 1855, and in 1872, when the authority of this committee was abrogated by the Education act, he became secretary of the United Schools Commission. In 1876 he became professor of the institutes and history of education in Edinburgh University. He was a member of the Edinburgh University Court and president of the Teachers' Guild of England. Among his published works are: *Philosophy of Ethics* (1866); *Primary Instruction in Relation to Education* (6th ed. 1898); *John Amos Comenius* (6th ed. 1896); *Mediæval Education and Rise and Constitution of Universities* (1886); *Historical Survey of Pre-Christian Education* (2nd vol. 1901).

LAWN TENNIS. The principal event in the tennis history of 1909 was the contest for the Davis Cup. The preliminaries were decided at Manheim, Penn., on September 11, the American team easily defeating the British players and thereby winning the right to challenge for the trophy which had been won in 1908 by the Australian team. The American team in the preliminaries was made up of W. A. Larned, W. J. Clothier, H. H. Hackett and R. D. Little. The British players were J. C. Parke, J. C. Dixon and W. C. Crawley. The results of the matches were as follows: Singles, Larned defeated Dixon 6-3, 6-2, 6-0; Clothier defeated Parke 6-4, 6-3, 8-6. Larned defeated Parke 6-3, 6-2, 6-3; Clothier defeated Dixon 6-3, 6-1, 6-4; Doubles, Hackett and Little defeated Parke and Crawley 3-6, 6-4, 4-6, 8-6. The team chosen to visit Australia in an endeavor to bring back the trophy comprised Maurice E. McLoughlin and Melville H. Long, neither of whom had taken part in the preliminaries. The fact that substitutes are allowable according to the rules governing the Davis international contests aroused considerable dissatisfaction among tennis enthusiasts who, while acknowledging that both McLoughlin and Long were brilliant players, still felt that more experienced men should have represented the United States. The match was held at Sydney, New South Wales, November 27-30, the Australian team (Norman E. Brookes and Anthony F. Wilding) winning in straight matches. A summary of the tournament follows: In singles Brookes defeated McLoughlin 6-2, 6-2, 6-4; Wilding defeated Long 6-2, 7-5, 6-1; Brookes defeated Long 6-4, 7-5, 8-6; Wilding defeated McLoughlin 3-6, 8-6, 6-2, 6-3; in doubles Brookes and Wilding defeated Long and McLoughlin 12-10, 9-7, 6-3.

In the championship tournament held at Newport, August 19-26, W. A. Larned again proved his superiority in the singles, and F. B. Alexander and H. H. Hackett were for the third consecutive year winners of the double championship. The players in the final round for the singles championship were W. J. Clothier and Maurice E. McLoughlin, Clothier winning

by the scores of 7-5, 6-4, 9-11 and 6-3. In the challenge round Larned defeated Clothier 6-1, 6-2, 5-7, 1-6, 6-1. Alexander and Hackett easily retained the doubles championship by defeating McLoughlin and George J. Janes in the challenge round 6-4, 6-4, 6-0. The Women's National Championship in singles, contested for in a tournament held at Philadelphia on June 26, was won by Miss Hazel Hotchkiss of California, who defeated the holder, Mrs. Barger-Wallach of New York, in the challenge round 6-0, 6-1. The championship in doubles was won by Miss Hotchkiss and Miss Rotch of Boston, and the mixed doubles by Miss Hotchkiss and W. F. Johnson, of the University of Pennsylvania. The national indoor championships were won by T. R. Pell in the singles and by Pell and W. C. Grant in the doubles. Pell defeated G. C. Shaffer in the singles finals 6-4, 6-3, 6-4, and Pell and Grant defeated W. B. Cragin, Jr., and M. S. Charlock in the doubles finals 6-3, 6-2, 7-5. The woman's indoor championship in singles was again won by Miss Marie Wagner, and the doubles by Miss Marcus and Miss Moore.

The intercollegiate championship in singles was won by W. F. Johnson of the University of Pennsylvania, who defeated M. H. Long of the University of California in the final round 6-4, 3-6, 5-7, 8-6, 6-4. The doubles were won by W. F. Johnson and A. D. Thayer of the University of Pennsylvania, the runners up being G. P. Gardner, Jr., and R. Sweetzer, of Harvard. In college dual tourneys Harvard defeated Yale 7 to 2 and Princeton 6 to 4; Yale defeated Cornell 6 to 0 and Princeton 6 to 0; Pennsylvania defeated Cornell 5 to 1. The New England intercollegiate championships resulted in victories for Dartmouth, in both singles and doubles. The Western intercollegiate championship was won by Minnesota.

The winners of the more important foreign tournaments in 1909 were: All-England, A. W. Gore in singles, and Gore and H. R. Barrett in doubles; Monte Carlo, F. B. Alexander, America, defeated H. L. Doherty, England, 7-5, 6-4, 6-1; Riviera, F. B. Alexander defeated M. J. G. Ritchie, England, 6-4, 6-2, 6-0; Nice, Alexander defeated Ritchie, 6-2, 6-1, 6-2; Canadian championships, Captain Foulkes, of Ottawa in singles, and Foulkes and Roby in doubles; South African championships, R. F. Doherty, England, in singles and Doherty and Hillyard in doubles.

LAYMEN'S MISSIONARY MOVEMENT. See MISSIONS, PROTESTANT FOREIGN.

LEA, CHARLES HENRY. An American historian, died October 24, 1909. He was born in Philadelphia in 1825 and received a private education. At the age of 17 he entered the publishing house of his father and ultimately became head of the concern, retiring in 1880. He was early devoted to historical studies and from 1857 gave special attention to European mediæval history. He published *Superstition and Force* (1866); *A Historical Sketch of Sacerdotal Celibacy in the Christian Church* (1867); *Studies in Church History* (1869); *History of the Inquisition of the Middle Ages* (1888); *Chapters from the Religious History of Spain* (1890); *Formulas of the Papal Penitentiary in the Thirteenth Century* (1892); *A History of Auricular Confession and the Indulgences in the Latin Church* (1896); *The Moriscos of Spain: Their Conversion and Expulsion* (1901), as well as many articles in periodicals. He wrote also: *The History of the Inquisition of Spain*

(1906-7), which is one of the most important contributions on the history of the subject. Dr. Lea also wrote and published several papers on Chemistry and Conchology. During the Civil War he organized a system of municipal bounties to encourage volunteering.

LEACH, SMITH S. An American army officer, died October 16, 1909. He was born in Indiana in 1851, and graduated from the United States Military Academy in 1875 at the head of his class. He was assigned to the engineer corps, and during his career he served successively at the Centennial Exposition at Philadelphia, at the Engineers' School at Willet's Point, N. Y., Baltimore, Boston and other places. For two years he had command of the first battalion of engineers at Fort Leavenworth. He was actively identified with the river and harbor improvements in Long Island Sound, on Lake Champlain and the St. Lawrence River, and the Missouri and Mississippi rivers. In 1889 he superintended the construction of the bridge across the Mississippi River at Memphis. At the time of his death he was on duty at the office of the Chief of Engineers at the War Department and was in charge of river and harbor improvement work. He was a member of the River and Harbor Board.

LEAD. The total production of refined lead, desilvered and soft, from domestic and foreign ores in 1909 was estimated at the close of the year by the United States Geological Survey at approximately 444,363 short tons, as compared with 396,433 short tons in 1908, and 414,189 tons in 1907. These figures do not include the estimated output of 12,860 tons of antimonial lead. Of the total production, desilverized lead of domestic origin, exclusive of desilverized soft lead, is estimated at 209,698 tons, against 167,790 tons in 1908. The desilverized lead of foreign origin comprised 87,379 tons, compared with 97,761 tons in 1908. The production of soft lead from Mississippi Valley ores was estimated at 147,286 tons as compared with 130,882 tons in 1908 and 129,607 tons in 1907. Missouri retained first place among the lead-producing States. There was a slight increase in the imports of lead in ore and base bullion, which amounted to 112,467 tons, valued at \$4,210,829, as compared with 109,287 tons in 1908. Of the 1909 imports, 102,300 tons, or 90 per cent., came from Mexico. The imports of refined lead increased slightly, being 3588 tons with a value of \$230,956, against 2795 tons in 1909. The exports of foreign lead (lead of foreign origin smelted or refined in the United States), showed an increase of 16 per cent., being 88,794 tons valued at \$3,221,836, as compared with 76,367 tons in 1908. The exports of lead manufactures decreased slightly, having a value of \$530,000 as compared with \$599,640 in 1908.

The figures of production given by the *Engineering and Mining Journal* differ considerably from those of the United States Geological Survey. According to the former authority the total production in 1909 was 461,103 tons, of which 374,579 tons were domestic. The consumption of lead increased largely through the year, as the business in white lead and oxides, which amounts to about 40 per cent. of the total, was especially good. The Payne tariff law made no change in the tariff on lead and ore and base bullion, but an alteration in the section as to smelting in bond deprived the refineries of the "exempt lead," which formerly was a valuable

perquisite. The price of lead in New York and London in 1908-9 by months is shown in the following table taken from the *Engineering and Mining Journal*:

LEAD

Month	New York 1908	New York 1909	St. Louis 1909	London 1908	London 1909
January	3.691	4.175	4.025	14.469	13.113
February	3.725	4.018	3.868	14.250	13.313
March	3.838	3.986	3.835	13.975	13.438
April	3.992	4.168	4.051	13.469	13.297
May	4.253	4.287	4.214	12.938	13.225
June	4.466	4.350	4.291	12.600	13.031
July	4.744	4.321	4.188	13.000	12.563
August	4.580	4.363	4.227	13.375	12.475
September	4.515	4.342	4.215	12.125	12.781
October	4.351	4.341	4.215	13.375	13.175
November	4.330	4.370	4.252	13.538	13.047
December	4.212	4.560	4.459	13.166	13.125
Year	4.200	4.273	4.153	13.439	13.039

New York and St. Louis, cents per pound.
London, pounds sterling per long ton.

LEATHER. Interest in the American leather industry in 1909 centred very largely on the revision of the tariff, as had been realized in the previous year. The demand for free hides had obtained considerable impetus not only from confirmed free trade advocates, but from boot and shoe and other manufacturers and from those who feared that great and concentrated packing interests would control the market. By the Dingley law the schedule of rates on hides was put at 15 per cent. ad valorem and manufactures of leather at 20 per cent.

As a result of an active propaganda and the sessions of the Ways and Means Committee in 1908 and 1909, the Payne bill, when reported, put hides on the free list. The Senate restored them to the dutiable list, imposing a duty of 15 per cent. At the demand of President Taft, who refused to sign the bill with a duty on hides, this was removed and the bill was duly passed. It reduced the duty on manufactures of leather, but not to a point where any violent objections were expressed by manufacturers. See **TARIFF**.

During the year there was a scarcity of hides and skins and an inflation in price, contributed

AVERAGE PRICE STATED SELECTIONS PACKER AND COUNTRY HIDES

	Native Steers	Butt branded Steers	Native cows Heavy	Branded Cows	Country Heavy Steers	No. 1 Butts
1909	16.50c	15.51c	15.23c	14.16c	14.08c	13.19c
1908	13.43c	12.30c	11.42c	10.40c	10.64c	9.19c
1907	14.56c	12.20c	13.12c	11.88c	11.77c	10.83c

RANGE FOR 1909

Low						
(Jan.)						
March	14.41	14.03	13.48	13.10	12.56	11.47
High						
(Nov.) (Nov.) (Oct.)						
December	17.93	16.50	16.50	14.75	15.22	14.29

to in part by speculation. This, coupled with tariff uncertainty, in the early months of the year, made the American leather market in 1909 somewhat unsettled. In the previous year hides were at their lowest value in January and increased progressively during the year, and a similar tendency was to be noted during 1909, though explained rather by the comparative scarcity than by the resumption of normal business from the panic conditions of 1907.

The effect of the tariff reduction on hides did not produce any marked lowering of prices. Fearing a withdrawal of foreign hides to the United States, European dealers immediately raised their prices so that at the close of the year foreign hides in the United States ruled at prices equal to or higher than those of domestic kill. In fact at the end of the year the hide and skin markets were on a level with those of the entire world, but leather men in America were convinced that the supremacy of the native product would be maintained through superior facilities and methods. In England there was a shortage of sole leather and fears were expressed that with the greater part of the hides of the world coming to the United States, Europe would be forced to depend upon that country for manufactured leather, as the American product was being increasingly used abroad.

The slaughter of cattle and sheep at markets for the years ending December 31, is indicated in the following table. The totals were estimated at 40 per cent. of the entire domestic supply of slaughtered cattle.

	1909		1908	
	Cattle	Sheep	Cattle	Sheep
Chicago	1,662,126	3,501,103	1,683,870	3,137,817
Kansas City ..	1,335,224	1,172,669	1,164,904	1,094,455
Omaha	727,522	1,186,948	683,402	993,404
St. Louis	866,614	661,886	798,170	559,753
St. Joseph.....	356,085	483,816	351,319	443,248
Sioux City ...	168,390	45,363	153,685	30,486
Fort Worth....	478,373	91,719	453,869	69,264
St. Paul	121,405	134,495	116,925	126,264
Total	5,715,739	7,277,999	5,406,144	6,454,664
Gain over 1908	309,595	823,335		

SUPPLY OF RAW MATERIAL FOR 1909.

Imports, Packer Take off, Country Hides, and Calfskins (estimated).

	Amounts	Values
Imports (December est.)	559,000,000*	\$102,000,000
Hides, packers (6,000,000 head at 60 lbs.)	360,000,000	54,000,000
Hides, country (6,000,000 head at 50 lbs.)	300,000,000	36,000,000
Calfskins (estimated).....		10,000,000
		\$202,000,000

*Pounds.

LEAVITT, JOHN McDOWELL. An American educator and writer, died December 11, 1909. He was born in Steubenville, Ohio, in 1824, and early entered the legal profession. He became later a member of the Protestant Episcopal Church and had, for a number of years previous to his death, been connected with the Reformed Episcopal Church. He was at one time president of Lehigh University, and of St. John's College, Ellicott City, Md. For a number of years he was a member of the faculty of the Reformed Episcopal Seminary, Philadelphia. His writings include *Reasons for Faith in the Nineteenth Century*, and other religious works, and a number of poems.

LEEWARD ISLANDS. A British colony of the West Indies, made up of the five presidencies of Antigua (with Barbuda and Redonda), St. Christopher, or St. Kitts (with Nevis and Anguilla), Dominica, Montserrat, and the Virgin Islands (qq. v.). Capital, St. John (in Antigua), with about 10,000 inhabitants. Total area, 701 square miles; total population (1901), 127,536. Number of pupils enrolled in the schools (1907-8), 26,314; average attendance, 12,222. The armed police force numbers 168. Sugar, molasses, fruits, and some cotton are produced. The total imports and exports for 1908-9 were valued at £567,593 and £536,312 respectively, against £517,424 and £521,509 in 1907-8. The revenue and expenditure were, in 1907-8, £151,520 and £134,273 respectively; in 1908-9, £154,333 and £146,216. The public debt stood (1909) at £273,650. The Governor (1909, Sir Bickham Sweet-Escott) is assisted by a general legislative council, possessing concurrent legislative powers with the local legislatures in certain matters.

LEHIGH UNIVERSITY. An institution of higher learning at South Bethlehem, Pa., founded in 1866. The attendance in 1908-9 was 668, and the teaching force numbered 67. There were 125,000 books in the library. Among the gifts received during the year was that of a fully equipped engineering laboratory to be used for testing strength of materials, hydraulics, cement and concrete and road materials, from John Fritz, the veteran iron-master and metallurgist. The building is in process of erection and will be ready for occupancy in the spring of 1910. A new mining laboratory, which will contain a complete ore-dressing plant, with accessory assay and chemical laboratory rooms for the testing of gold, silver, lead, zinc, copper, and other metals, was also given to the University. A sum of money was given in 1909 for the purpose of promoting an intelligent interest in the problems of forestry among the students of the University and the people in the vicinity. Professor

IMPORTATION OF HIDES AND SKINS (CALENDAR YEARS)

	1909		1908		1907	
	Quantity, lbs.	Value, Dollars	Quantity, lbs.	Value, Dollars	Quantity, lbs.	Value, Dollars
Cattle hides.....	379,114,262	38,161,362	137,922,575	16,318,195	122,932,034	18,120,638
Goat skins.....	115,547,176	29,827,745	75,857,983	18,835,098	86,252,338	56,565,334
All others.....	188,381,007	35,760,170	114,666,324	22,500,488	147,563,578	32,964,067
	573,042,505	103,758,277	328,446,882	57,653,761	355,547,950	77,650,059

Robert W. Hall, head of the department of biology, was made lecturer on forestry, as well. The total productive funds of the college amount to \$1,178,000. The president is Henry S. Drinker, LL. D.

LEIBLING, SALLY. A German pianist, died September 16, 1909. He was born at Posen and studied music and the piano under Bendel, Kullak and Weitzmann in Berlin. He made a number of concert tours in Germany and played with Thomas's orchestra in the United States in 1875. Subsequently he gave many recitals with well-known artists. In 1884 he studied for a time under the direction of Liszt at Weimar, and in 1888 founded the new conservatory of music at Berlin.

LELAND STANFORD JR. UNIVERSITY. An institution of higher learning at Palo Alto, Cal., founded in 1887. In 1909 there were in attendance 1600 students, with 198 members in the faculty. There were in the library 127,229 volumes. Among the additions to the faculty were the appointments of Dr. H. E. Bolton, formerly of the University of Texas, to the professorship of history; Dr. E. B. Krehbiel, formerly professor of history in Chicago University, to the associate professorship in history; and Dr. A. W. Meyer, formerly professor of human anatomy at Northwestern University, to the professorship at Stanford University. An important step was taken in the appointment of A. E. Roth, of the class of '09, as student adviser. A partial student control of the internal affairs of the University relating to the student body is on trial, and matters of general discipline are turned over to the student committee. There were added to the collections of the University during the year the Arnold collection of fossils, the Towne collection of birds and the important *collection de documents inédits sur l'histoire de France*. The total productive funds of the University amount to about \$25,000,000, and the annual income to about \$860,000. The president is David Starr Jordan.

LEMLY, SAMUEL CONRAD. An American naval officer, died September 3, 1909. He was born in North Carolina in 1853, and was appointed midshipman in the navy from that State in 1869. After service of several years at sea, he worked on the *Nautical Almanac* in 1880. In 1886 he was made a lieutenant, and in 1892 was made captain and commissioned Judge Advocate General of the navy, serving three successive terms. He was Judge Advocate at the Schley court of inquiry. In 1902 he was retired from the active list, but continued to act as Judge Advocate General at intervals until 1908, when he ceased to perform active duties.

LEOPOLD II., KING OF THE BELGIANS, DUKE OF SAXE AND PRINCE OF SAXE-COBURG-GOTHA, died December 17, 1909. He was born at Brussels on April 9, 1835, and was the son of King Leopold I. and of his second wife, Louise, Princess of Bourbon-Orléans, the daughter of Louis Philippe, King of France. He succeeded to the throne of Belgium on the death of his father, December 5, 1865. The events in his reign which will give it an important place in the history of the world are concerned with the creation of the Congo State, originally called the Congo Free State, a vast region of 900,000 square miles in the heart of

Africa. Leopold launched this great enterprise in 1876, when he suggested the founding of the African International Association. Henry M. Stanley was sent to East Africa at the expense of the King, and when in 1877 he revealed to Europe the extent and richness of the Congo Basin, the machinery was already perfected in Belgian hands, and especially of the King, to assume the task. The other great European powers looked on jealously, and their very jealousy rendered them impotent to interfere. The advantages of Belgium, a country of guaranteed neutrality, to assume the tutelage of the new state, which was to be kept neutral and free to the commerce of the world, were diplomatically urged, and one power after another gave assent, the United States among the last, and in November, 1884, the Congress of Berlin assembled to perfect the plans of Leopold. By act of this Congress, the Free State was erected February 26, 1885, and then began the extraordinary history of headlong development, consummate exploitation and unspeakable cruelty, which has continued to the present time. Volumes have been written, as well as countless articles in newspapers and other publications, describing the horrors which were permitted in connection with Belgian rule in the Congo State. Among these was the system of bondage, known as the collection of taxes in kind, which exacted so much of the natives' labor that they starved by the village-full from inability to raise food. There were stories of shooting, flogging, mutilation and other forms of savagery and, allowing discount for exaggeration, it cannot be doubted that conditions of atrocity existed in the Congo State such as the world has never seen surpassed. To what extent Leopold himself was responsible for these abominations cannot be known. In his rule in Belgium he was known as a humane man, fair and just in his dealings with his subjects. It is probable that the increase in the profits which poured in upon him blinded him to the measures by which these profits were obtained. In his defense he urged that he had suppressed the real slave trade, that he had opened the country to missionaries of all religions, that he had completed works for sanitation and education, and had constructed centres of trade and means of transportation. When the scandal became too open and the protests from London, Washington, and other capitals could not be disregarded, Leopold promised reforms, but these were not forthcoming. Active intervention was threatened and there was danger that the Congo Protectorate might be lost, not only to the King, but to Belgium. Leopold then saved the territory for his country by an agreement between the Free State and the Belgian government, made in 1890, that he would surrender his Congo sovereignty in November, 1907. The Belgian Parliament held him strictly to this agreement. He had attempted to hold the Crown Domain erected in 1901 and comprising about one-ninth of the entire Congo territory, but this the Parliament compelled him to surrender and also to concede the reversion at his death of the properties in Belgium known as the "Fondation de la Couronne," and his magnificent villa on the Riviera. This deed was finally consummated August 20, 1908, but neither Great Britain nor the United States had given assent to it at the end of 1909. See CONGO, BELGIAN.

Leopold's relations with his family were, from the very beginning of his reign, unhappy. He married on August 22, 1853, Maria Henrietta, Princess Imperial and Archduchess of Austria, but for many years previous to her death they lived apart. With two of his three daughters he was for many years on terms of enmity. The eldest daughter, the Princess Louise, married, in 1875, Prince Philip of Saxe-Coburg, a nephew of Queen Victoria, and after twenty years of married life she eloped with a young lieutenant of the Austrian Uhlans, whom she met in Vienna at the house of her sister Stephanie, wife of the Crown Prince of Austria. This led to her confinement for many years in an insane asylum, and when she was finally set at liberty, her father would not see her. His second daughter, Stephanie, was married in 1881 to the Archduke Rudolf, Crown Prince of Austria. After his death she married Count Lonyay, against the wishes of her father, and he refused to be reconciled to the marriage even on the intercession of the Pope, and she was forbidden to attend the funeral of her mother, who died in 1902. Leopold's only son, Leopold Ferdinand, died in 1869 when nine and one-half years of age. With Clementine, his third daughter, he was on better terms, but quarreled even with her.

Leopold was, without doubt, one of the most profligate of modern rulers, and his notorious acts were a constant source of scandal, not only in his youth, but his old age. His capacity for spending money was extraordinary. He derived an income of \$660,000 a year from the Belgian people, and he had inherited a fortune of at least \$6,000,000 from his father, yet he was accused of having virtually embezzled and dissipated the dowry of his wife and the fortune of his sister, Carlotta, widow of Maximilian, once Emperor of Mexico, who has been under restraint as insane ever since the execution of her husband in Mexico. The amount of this estate is said to have been over \$10,000,000.

In spite, however, of his frivolity and prodigality, the King was always a wise ruler, and he was much beloved by the mass of his people. He developed enormously the industries of Belgium, investing his own money freely in them, and he was always most scrupulous in keeping within the limits of his power as a constitutional monarch. He favored advanced ideas, such as old age pensions, insurance of industrial workers and the improvement of the dwellings of the poor. He invested much money also in foreign enterprises, and was one of the largest holders in the Canton-Hankow Railroad in China, which was sold to a New York banking house in 1905 for \$2,000,000. He was also a great traveler and visited in his youth the Levant, North Africa and every country in Europe. In 1902 he projected a visit to St. Petersburg, Siberia, China and Japan, but abandoned it on account of ill-health. In 1903 it was announced that he intended to visit the United States in 1904 to attend the St. Louis Exposition. The trip, however, was abandoned without any explanation.

Leopold was well versed in history, literature and politics, and was a great patron of art. His collections at his magnificent home at Laeken, near Brussels, all of them ancient and modern paintings, were of the most magnificent description. In appearance he was imposing.

He was one of the tallest men in Europe, with erect figure, well-formed features, and a square-cut beard, which was once brown, but for many years snow white. He was a well-known figure in Paris and London, and at many of the famous watering places of Europe.

LEPROSY. The International Conference on Leprosy was held in Bergen, Norway, August 16 to 19, 1909. Delegates from most civilized countries were present, and the status of the disease throughout the world was discussed. Bergen was the first city in Norway to build a hospital for lepers (in the thirteenth century), and the discovery of the *Bacillus lepræ* was made by Hansen, a native of this city, in 1872. The official statistics of the Commission of the United States Public Health and Marine Hospital Service gave the number of lepers in 1892 as 278, 145 of whom were born in the United States. Of this number only 72 lepers were segregated. At present the number is approximately 278. In his report of the status of leprosy in the Hawaiian Islands, Dr. Brinckerhoff, of the Leprosy Investigation Station at Molokai, gave statistics which indicate that in spite of the system of segregation, which has been in operation over forty years, the disease is steadily making progress, not only among the native population, but also among the other races on the Islands. The figures available show that in 1876, 1.35 per cent. of the entire native population were lepers; in 1900, 2.5 per cent. were thus afflicted. This increase is explained partly by the more rigid segregation now practiced, but there is no doubt of the actual increase in the number of victims. While segregation is practically voluntary, officials of the law are required to report suspected cases. The result is that lepers remain in hiding until the disease is so advanced that concealment becomes impossible. This period averages nearly four years, so that there is abundant opportunity for spreading the infection. The disease occurs more frequently in crowded districts than in the country. The report indicates also that leprosy is increasing among European and Asiatic immigrants. The Japanese and Portuguese furnish a considerable number of cases. No new methods of specific treatment were discovered during the year.

Treatment by nastin injections, of which much was expected, was generally condemned by observers in several countries. Nastin is obtained as a neutral grease from the culture of a kind of streptothrix (*streptothrix leproides*), and is apparently identical with the neutral fat obtained from the tubercle bacillus. Pure nastin has the quality of producing in some lepers a reaction varying in severity from very slight to very dangerous symptoms. The nastin treatment has to be continued for a year, intermittently. The injections are painful, and while some patients are apparently benefited for a time, others are made much worse. The question as to whether leprosy is transmitted by insects was investigated by the Danish-French Leprosy Expedition. Experiments were made on fifty lepers in the Danish West Indies. Their findings indicate that biting insects are not concerned. At the leper settlement at Molokai eucalyptus baths have been used for two years, and Hollmann states that under this form of treatment the skin becomes very soft and pliable, the leonine facies less marked, there is an improvement in neurotic pains,

ulcers, erosions and abrasions of the skin and mucous membranes are healed, and the leprosy fever is decidedly decreased. Two hundred and seventy-five patients have been treated, with the result that the death rate in the leper settlement has been less than 5 per cent., of which less than 2 per cent. was due to leprosy. It is believed that patients in the early stages of the disease might possibly be cured.

LEROY, JAMES A. An American public official and writer, died March 2, 1909. He was born in 1875, graduated from the University of Michigan in 1896, and engaged in journalism and teaching until 1898, when he was appointed to a place on the Philippine Commission. He remained there until 1902, when ill-health obliged him to resign, and he became Consul at Durango, Mexico. He accompanied Mr. Taft on his tour around the world in 1906. He wrote *Philippine Life in Town and Country*, and was engaged on a longer work on the Philippines at his death.

LIBERIA. An independent negro republic on the western coast of Africa. Coast line, about 350 miles; estimated area, 35,000 square miles; estimated population, 1,500,000, including about 10,000 Americo-Liberians. Capital, Monrovia, 6000 inhabitants. There are government and mission schools. There are extensive and valuable forests in the interior, and much mineral wealth exists, some of which is being prospected by the Liberian Development Chartered Company. The development of the country is hindered by laws prohibiting the ownership of real estate by foreigners, by bad roads, the disturbed condition of the interior, the backward state of the inhabitants, and the limited ports of entry. Imports and exports in 1908 were valued at £240,000 and £182,708, respectively, against £113,843 and £111,398 in 1907. Palm oil, palm kernels, coffee, rubber, and piasava fibre are the chief exports. There are no railways, and few roads properly so-called. The revenue in 1908 amounted to £83,000 (customs £77,000); no estimates are given for expenditure. In 1905 the revenue and expenditure were £47,000 and £59,760 respectively. Total outstanding debt at end of 1908, £189,097. The executive authority rests with a president and a council of six; the legislative power in a parliament of two houses. President, 1909, Arthur Barclay, reelected, 1907. In April, 1909, the United States government sent out a committee of three to investigate conditions in the republic.

Military service is obligatory for every citizen between 16 and 50 able to carry arms in time of war. The organized militia and police constabulary comprise about 2000 men divided into five regiments and two brigades. This is under European officers.

HISTORY. For some years Liberia has been a source of anxiety to the Powers that controlled adjacent territories, namely, France and Great Britain, and President Barclay went to Europe to consult with the authorities as to plans of improvement. The result of this was the appointment of European customs officers and the commissioning of a gunboat to patrol the coast, and also the formulation of a plan for a frontier force. These measures were approved by Great Britain, France and the United States. The effect of the changes in the customs department was an increase of the revenue which enabled the government to pay a portion of its debts. The gunboat, however, caused some trouble by

its interference with the Kru tribe in their trade, which was contrary to the Liberian port of entry laws. The frontier force, which had been demanded by France for policing the French and Liberian frontier, was organized under a British officer. He raised a force of 200 men, of whom seventy came from the Sierra Leone police. This force, however, was an object of suspicion to Liberians, as its equipment was British. The payment of the troops fell into arrears, and the British officer in command complained, and on February 11 informed the government that unless the arrears were paid he could not be responsible for the action of his men. At that time a British gunboat happened to be in the harbor, and a panic arose among the Liberians at the imagined threat of British aggression. The militia was called out and the members of the Congress met under arms. The trouble, however, was soon settled after a conference of the foreign representatives and the force was disbanded. In 1908 the intervention of the American government had been discussed between Sir Edward Grey and the United States Ambassador, the latter inquiring by what means his government could best cooperate. The former advised judiciary reform and the appointment of a financial adviser. He had also urged the United States to induce the Liberian government to act on the advice of foreigners in the financial administration, the main difficulty being, in his opinion, the inefficiency of the Liberian government in the management of its own affairs. He made it clear that American cooperation was welcome. Three commissioners were sent out by the United States in April to report on the condition of affairs. No official report had appeared at the close of the year, but one of the commissioners in a narrative of the visit declared the chief problem to be the control of the native tribes and their assimilation to the body of Liberian citizenship. Immense difficulties are presented by the question of transportation, owing to the density of the African forest. Progress is also retarded by ignorance of the country's natural resources and of the best means of exploiting and conserving them.

LIBRARY ASSOCIATION, AMERICAN. A society with a membership of nearly 2000, organized to develop the public library in its bearing on American education and by cooperation to increase the efficiency of library administration. It was established in Philadelphia in 1876, and incorporated under the laws of Massachusetts in 1879. The 31st annual meeting was held at Bretton Woods, N. H., June 28 to July 3, 1909. There was an attendance of 620. In addition to the regular committee reports, the principal topics discussed were: Coördination or Methods in Coöperation; Library Coördination; The School and the Library; Storage Libraries; and Reservoir Libraries. This conference was an unusually important one, as the constitution of the Association was revised and it was decided to remove the Association headquarters from Boston to 1 Washington Street, Chicago. The new headquarters will be the distributing centre for all the American Library Association publications, and it will serve as a bureau of information concerning library work in the United States. It will be the meeting place of the Executive Board of the Association, the Publishing Board, and of the different sections of the A. L. A. Publications of value to librarians

will be on file for the use of library workers and others. The Association has been instrumental in establishing library organizations in thirty-nine States besides many local library clubs in cities and districts. Four sections are maintained: Cataloguing, library work with children, college and reference, and trustees. The Association has affiliated with it the three national organizations of kindred purpose: The National Association of State Libraries, the League of Library Commissions, and the American Association of Law Libraries. These hold separate sessions at the same time and place, with the annual meeting of the larger body. The most important activity of the Association is the Publishing Board, which operates under the gift of \$100,000 made in 1902 by Andrew Carnegie. The income of this fund is used in the preparation of indexes, of bibliographies, reference helps and literature for the promotion of library extension and the selection of books. It published in 1902 an important bibliography of American history, and in 1904 prepared the A. L. A. Catalogue, a guide to classification, cataloguing and book selection, published by the Library of Congress, and first distributed at the International Library Conference held in connection with the Louisiana Purchase Exposition. In 1909 work was started on a supplement to this catalogue to cover the years 1904 to 1909 inclusive. Its officers for 1910 are as follows: President, N. D. C. Hodges, Public Library, Cincinnati; First Vice-President, James I. Wyer, Jr., New York State Library, Albany, N. Y.; Second Vice-President, Alice S. Tyler, Iowa Library Commission, Des Moines, Iowa; Secretary and Executive Officer, Chalmers Hadley, 1 Washington Street, Chicago.

LIBRARY OF CONGRESS. A national institution open to the public at Washington, D. C., founded in 1800. It occupies what is probably the most magnificent and well equipped library building in the world, constructed in 1897 at a cost of over six million dollars. In 1909 at the close of the fiscal year there were in the library 1,702,685 books, 111,343 maps and charts, 501,293 volumes and pieces of music and 303,036 prints. There were in addition a large number of manuscripts concerning which a numerical statement is not possible. The accessions to the library in printed books and pamphlets during the year were 167,677 volumes. The most important gift of printed material received during the year was a set of the great Chinese Encyclopædia (The Tu Shu Tsi Cheng), comprising over 5000 Chinese volumes. This was brought to Washington by the special ambassador charged with the acknowledgments of China to the United States for the return of the Boxer indemnity. The collection of Chinese literature in the library now numbers over 10,000 volumes. Among the gifts of individual merit having special interest were over 100 printed volumes from the library of George Bancroft, presented by Mrs. J. C. Bancroft Davis. The only collections purchased during the year were one of African linguistics, about 5000 pieces, from Mr. Wilberforce Eames, and one of early English plays of about 2000 pieces. Among individual items of importance were, however, sets of linguistic publications of Prince Louis Lucien Bonaparte, and the great edition of 101 volumes of the sacred books of Tibet, secured through Mr. Rockhill, United States Minister to China. Many valuable accessions were made during the

year in the department of manuscripts, including many documents relating to the Revolution and to the individual States. Many manuscripts were also added dealing with persons living in the early history of the country. On January 1, 1909, Worthington C. Ford, the Chief of the Department of Manuscripts, resigned his position to become editor for the Massachusetts Historical Society. He was succeeded by Gaillard Hunt, who had served for twenty-one years in the Department of State as Chief of the Bureau of Citizenship. The preparation of additional calendars of the manuscript collections was continued during the year and the calendar of the Andrew Johnson papers was about completed. The calendar of military correspondence of George Washington during the Revolution will be ready for publication before the close of the fiscal year 1910. Calendars of the Van Buren, Jackson and John Fitch papers, and of the Jefferson accessions are in progress. The calendar of the New Mexico papers now covers from the year 1621 to 1805. The editing of the work of the Journals of the Continental Congress was carried on by Mr. Ford for many years, and is continued by his successor. Appropriations for the fiscal year 1910 for the carrying on of the work of the library amounted to \$685,561. Visitors to the library during the year numbered 833,280 or a daily average of 2296.

LIGHTHOUSES. The chief problem of 1909, as in previous years, was to find a satisfactory form of illumination for the lights of the more important lighthouses. The great reliability of oil had been demonstrated, and after a number of years' experiments, the United States Lighthouse authorities reached the conclusion that vaporizing the oil and using it to heat incandescent mantles of refractory materials, was the most efficient and economical method. Various systems had been tried and it was found that the power of the various lamps was greatly increased, and by 1909 it was thought that apparatus had been developed to a point where it would meet all requirements and lamps were being built and issued at the shops of the Lighthouse Establishment. In Europe, the advantages of incandescent oil vapor had been realized even longer, and very satisfactory apparatus was in use. The great light on Helgoland Island still stood in 1909, not only as the most powerful light in Germany, but in the world, and its 40-million candle-lighting power was not rivaled by any new lighthouse built in that year. It is an electric installation with three revolving search-lights and an emergency light capable of revolving three times as fast as the cluster that can be employed in case of the failure of the latter.

In 1909 the United States government had under construction a new lighthouse at White Shoal, at the extreme northern end of Lake Michigan, in open water, 20 miles west of Old Mackinac Point in the Straits of Mackinac, 14 miles from the nearest land on the north, and 18½ miles from land on the south. This location was formerly marked by a lightship anchored over the shoal, and is one exposed to the face of storms from any quarter. It is also near the route of all traffic through the straits. It was therefore deemed desirable to install a permanent light which was to be a circular tower of steel erected on a skeleton frame with a light 125 ft. above the lake level.

A steel tower lighthouse of great strength

and stability was completed during the year by the Cuban government at Cayo Caiman Grande, Cuba. It consists of an octagonal pyramidal skeleton tower 115 feet in height, surmounted by a lantern and watchroom which are connected by a special stairway in a cylindrical steel shell, with the keeper's apartment below. The tower has a base about 56½ feet in diameter and the columns are seated on concrete pedestals built into excavations in the solid rock, very firmly bolted to the rock itself, the entire structure having been planned with reference to the great wind and water pressure to which it is likely to be exposed.

ACETYLENE BUOYS. The opening of the Ambrose Channel in New York Harbor, to commercial use, presented an interesting problem, as it was desired to mark this deep water approach to the city by the most complete and effective system of buoyage available. The use of acetylene buoys was decided upon, as the channel is to be used by night as well as by day, and apparatus was ordered from several makers, for competitive test, in order that the best system could be ascertained by experience. The Lighthouse Board placed at the entrance to the channel on December 1, 1908, light vessel No. 87, a full powered steamer of 488 tons, in which the most modern type of apparatus was installed. It was proposed to increase the intensity of the light by the installation of a lens similar to that used in lighthouses.

ORGANIZATION OF LIGHTHOUSE ESTABLISHMENTS. The Secretary of Commerce and Labor in his annual report for 1909 drew attention to the matter of the reorganization of the Lighthouse Establishment, which under the Department of Commerce and Labor is charged with the supervision and maintenance of the lights and other aids to navigation on the navigable waters of the United States. Attention was called to the fact that there was no executive head to the Lighthouse Establishment, and that the service was divided between representatives of the army and navy, the former serving as engineers and the latter as inspectors. The Secretary suggested that this divided responsibility, with expense for separate tenders, be obviated by placing an entire district in charge of one officer instead of two. It was recommended by the Lighthouse Board that the sixteen existing districts should be increased by three, in order to make separate districts of Porto Rico and Guantanamo, Cuba; the Territory of Hawaii, and other Pacific Islands; and Alaska.

There were in 1909 the following aids to navigation under the control of the United States Lighthouse Establishment:

Character—Lighted aids:	
First-order lights	59
Second-order lights	20
Third-order lights	73
Three-and-a-half-order lights	16
Fourth-order lights	331
Fifth-order lights	147
Sixth-order lights	90
Lens-lantern lights	464
Range-lens lights	34
Reflector lights	91
Post-lantern lights	2,333
Electric arc lights	7
Electric incandescent lights	1
Light vessels	53
Light vessels, relief	13
Gas-lighted buoys	94
Total	3,926

Unlighted aids:

Fog-signals, steam, etc.	228
Fog-signals, clockwork	205
Day beacons	1,157
Submarine signals	43
Whistling buoys	94
Bell buoys	169
Other buoys	5,760
Total	7,656
Grand total	11,582

LILIENCRON, DETLEV, Baron von. A German novelist and poet, died July 22, 1909. He was born at Kiel in 1844. He served in the Prussian army in the campaigns of 1866, 1870 and 1871, and was severely wounded in each. After some time spent in travel in America, he was until 1887 in the employ of the German government, after which he devoted himself entirely to literature. Liliencron was one of the most influential of the "Young German" authors, and was a member of the Berlin "Freie litterarische Gesellschaft," and was one of the founders of the Munich "Gesellschaft für modernes Leben." He had great influence over nearly all the members of the new school in Germany. He was better known, perhaps, as a lyricist than a novelist. Among his most popular lyrics are *Breide Hummelsbüttel* (1886; 2d ed. 1900); *Der Mäcon* (1890; 3d ed. 1900); and the *Kriegsnovellen* (1896; 4th ed. 1902). He wrote also several dramas, the best known of which are *Der Trifels* and *Palermo* (1886), and *Pokahuntas* (1905). The military swing of many of his lyrics won for him the title of "the soldier poet." His narratives were powerful, but they were marred by some affectation of manner. His themes were frequently erotic. His best known poetic works are: *Adjutant-entritte* (1884); *Gedichte* (1889); *Neue Gedichte* (1893); *Nebel und Sonne* (1900); and *Bunte Beute* (1903).

LILLEY, GEORGE LEAVENS. An American public official, Governor of Connecticut, died April 21, 1909. He was born in Oxford, Mass., in 1859. His education was obtained in the public schools and in a technical school in Worcester, Mass. He engaged in business and became partner in the firm of Lilley, Swift & Co., of Waterbury, Conn. In 1900 he was elected to the State Legislature, and in 1903 to Congress, where he served until 1908. He became conspicuous in February of that year by charges made by him that there had been gross corruption in the procuring of contracts by the Electric Boat Co., for submarine boats for the navy. A Congressional inquiry found these charges baseless, and Mr. Lilley was forced to retract them. He was also declared to be in contempt, and to have violated the privileges of the House. In November, 1908, Mr. Lilley was elected Governor of Connecticut. Charges of corrupt practices were brought against him, but the law under which they were made was declared unconstitutional by the State courts. He refused to resign his seat in the House of Representatives, and on his inauguration it was declared vacant.

LINCOLN CENTENARY. See CENTENARIES AND ANNIVERSARIES.

LINDSAY, THOMAS BOND. An American scholar, died July 22, 1909. He was born in New York City in 1853, and was educated at

the Genesee Wesleyan Seminary and Wesleyan University, graduating from the latter institution in 1874. From 1874 to 1877 he studied in Germany, and in 1878 was chosen assistant professor of Latin and Sanskrit in Boston University. He became full professor in these branches in 1884, retaining this chair until his death. He edited Cornelius Nepos, Juvenal and Catullus, and contributed to Warner's *Library of the World's Best Literature*. He wrote also *The Place of the Classics in the Modern Curriculum* (1901).

LINDSAY, WILLIAM. An American statesman, formerly United States Senator from Kentucky, died October 15, 1909. He was born in Rockbridge county, Va., in 1835, and was educated in the schools of Lexington, Va. Following his graduation he entered the law office of Judge John W. Breckenridge, where he studied for four years. In 1856 he was admitted to the bar and began the practice of law in Clinton. On the outbreak of the Civil War he enlisted as a private in the Confederate army. He served throughout the war and took part in many important engagements. At its close he was paroled and again took up the practice of law. He was elected to the State Senate in 1867, and in 1870 was elected Judge of the Court of Appeals, which office he held until 1878, serving for the last two years as Chief Justice. After his retirement from the bench he spent considerable time in New York City, where he was a member of the law firm of Lindsay, Kremer, Kalish & Palmer. His work as a judge was of the highest order and he made many important decisions during the term of his office. In 1889 he was elected to the Kentucky State Senate, and in the same year he was appointed a member at large of the World's Columbian Exposition. He was appointed United States Senator from Kentucky to fill the unexpired term of John G. Carlisle in 1893, and a year later was elected for the full term, serving until 1901. He was a sound-money Democrat and was, in 1896, asked by the Kentucky Legislature to resign. This he refused to do in a scathing reply in which he said that he represented the people of the State and not any faction or any political party. He was defeated for reelection to the Senate. Senator Lindsay was a trustee of the Louisiana Purchase Exposition, and of the Carnegie Institution at Washington. He was also a member of the American Bar Association and the Bar Association of New York.

LIQUID CRYSTAL. See CHEMISTRY.

LIQUORS, FERMENTED AND DISTILLED. These products are classed under four general heads; (1) wines, (2) malt liquors, (3) distilled liquors, and (4) liqueurs or cordials.

WINES

The table in next column gives the estimated production of wine in the world for 1906 and 1907, the latest statistics.

The estimates for 1908 show a slight decrease

in France and Italy and a slight increase in Spain: France producing 60,545,265 and Italy 51,748,760 hectolitres.

It is exceedingly difficult to obtain any information as to the actual production of wines in the United States, as they are under no supervision by the government. The following table shows approximately the production of dry wines in the State of California for the last ten years.

THE WORLD PRODUCTION OF WINE, 1906 AND 1907

(Estimate of the *Moniteur Vinicole*)

Country.	1906 Hectolitres	1907 Hectolitres
France	52,079,050	66,070,273
Corsica	146,000	252,076
Algeria	6,905,720	8,601,228
Tunis	230,000	300,000
Italy	29,783,000	53,902,607
Spain	13,600,000	18,384,000
Portugal	3,900,000	4,500,000
Azores, Canaries and Madeira	110,000	150,000
Austria	3,100,000	3,500,000
Hungary	2,805,000	3,100,000
Germany	2,150,000	1,900,000
Russia	2,100,000	2,600,000
Switzerland	1,200,000	900,000
Luxembourg	120,000	105,000
Turkey and Cyprus	1,700,000	1,500,000
Greece	900,000	1,225,000
Bulgaria	1,900,000	2,100,000
Servia	500,000	550,000
Rumania	2,500,000	2,600,000
United States	1,400,000	1,600,000
Mexico	18,000	16,000
Argentine Republic	1,500,000	1,300,000
Chile	2,500,000	2,000,000
Peru	98,000	95,000
Brazil	225,000	320,000
Uruguay	92,000	90,000
Bolivia	28,000	25,000
Australia	265,000	270,000
Cape of Good Hope	190,000	195,000
Persia .....	.....	18,000

1 hectolitre equals 26.41705 gallons.

Dry wines produced in the State of California.

	Gallons.
1900	13,762,953
1901	27,000,000
1902	27,000,000
1903	21,900,000
1904	15,590,000
1905	19,500,000
1906	24,500,000
1907	26,000,000
1908	22,500,000
1909	23,000,000

The production, however, of fortified sweet wines being under the regulation of the Bureau of Internal Revenue, can be very exactly determined. The following table shows the production of fortified sweet wines in the four States producing the largest amounts, and the total production for the United States for the years 1908 and 1909.

	Tax gallons of brandy used		Wine gallons fortified			
	1908	1909	Before fortification 1908	After fortification 1909	Before fortification 1908	After fortification 1909
California	4,233,977	3,678,377	14,057,110	12,235,305	16,491,168	14,368,025
Hawaii	3,706	4,764	14,995	21,058	17,222	24,176
New York	135,337	129,453	471,298	465,261	547,488	539,507
North Carolina	5,567	1,354	49,126	12,500	52,509	13,243
Total production for U. S.	4,380,016	3,814,129	14,601,975	12,734,898	17,119,261	14,946,871

This table shows a very appreciable decrease in production during the year 1909, principally in California, and also that very little advantage is taken of the sweet wine law outside of the States of California and New York.

MALT LIQUORS. The production of fermented malt liquors in the United States was 56,303,497 barrels during the year 1909, as against 58,747,680 in 1908, and 58,546,111 barrels in 1907. This decrease of 2,444,183 the past year, was largely due, in all probability, to the temperance laws which went into effect in various States.

In Great Britain the consumption of beer during 1909 was 32,751,733 barrels, as against 33,850,186 barrels the previous year.

DISTILLED LIQUORS. The statistics of the production of distilled spirits in the United States showed an increase for the year 1909. The report of the Commissioner of Internal Revenue shows 136,287,731 tax gallons in 1909, as against 129,660,202 tax gallons for 1908, but, in spite of this increase of production, there was a decrease in spirits tax paid, 116,285,316 gallons being withdrawn for this purpose, as against 119,703,594 gallons in 1908, indicating that larger amounts are being stored for maturing.

The effect of the new regulations of the Bureau of Internal Revenue as to the marking of distilled spirits in compliance with the Pure Food Law, is shown in the table below, which indicates a remarkable change in the kind of spirits produced during the past year.

The increase in production of whiskey from

It also shows that there has been a steady decrease in production in the last ten years, falling from 63,437,884 gallons in 1899 to 49,529,602 during the year 1909. This decrease in production, however, has been almost entirely in Scotch spirits, falling from 35,769,114 gallons in 1899 to 24,407,727 in 1909. During the past ten years the amount of spirits consumed in Great Britain has decreased steadily from 1.05 proof gallons per capita in 1899 to 0.87 in 1909.

During the year 1909, the controversies arising under the food laws, as to the proper labeling of all kinds of distilled spirits, have continued with unabated zeal. The English Commission continued its labors, giving hearings as to the proper labeling of all kinds of distilled spirits, and, after long deliberation, concluded that whiskey was made from grain, that brandy was made from grapes, that Scotch whiskey was made in Scotland, and that Irish whiskey was made in Ireland; that the distillers did not deceive the wholesaler, but that the consumer was often deceived, but the difficulties of protecting him were so great that it was not worth the trouble. The outcome of this commission is disappointing.

In France the question of limiting the region in which Cognac brandy can be produced and the proper labeling of brandies produced in other parts of the country, has been considered and settled, very sharply defined lines having been drawn about the Cognac section, and all brandies produced outside of this small area cannot be called Cognac brandy.

TABLE SHOWING KINDS OF DISTILLED SPIRITS PRODUCED IN THE UNITED STATES

	Rum	High Wines	Gin	Whiskey	Alcohol	Commercial Alcohol	Miscellaneous
1909.....	1,895,922	50,062	2,756,752	27,708,351	50,935,821	16,849,154	26,793,675
1908.....	1,952,374	221,277	2,483,743	70,152,174	42,562,103	16,678,082	.....

27,708,351 gallons in 1908 to 70,152,174 gallons in 1909, is nothing short of marvelous,—42,443,823 more gallons of whiskey in 1909 than in 1908. Part of this apparent increase was due to the fact that during 1908 a considerable amount of whiskey was classified under miscellaneous, but even considering all the production of 1908 classed as miscellaneous as whiskey, there is still an increase of 15,650,148 gallons over the previous year. The production of alcohol has, however, shown a very large decrease, 8,372,719 gallons less being shown. This either means that the distilling business has largely changed from the production of high proof alcohol to the production of whiskey or that a large amount of high-proof alcohol has been branded whiskey in violation of the regulations. As a matter of fact, it is probable that both factors have been at work,—that there has been a large change in the kind of spirits produced and also a large amount of alcohol diluted and marked whiskey.

The report of the Inland Revenue Office of Great Britain shows a slight increase in the production of spirits during the last year; the following table shows the amounts for 1908 and 1909:

	England gallons	Scotland gallons	Ireland gallons	Total gallons
1908 ...	13,328,083	22,796,555	11,653,513	47,778,151
1909 ...	12,929,631	24,407,727	12,192,244	49,529,602

In addition, the French government has adopted a system of revenue supervision of the production and handling of brandies, so that the purchaser may be assured of obtaining a pure product. This is somewhat of the same nature as the regulations in the United States in regard to spirits in government bonded warehouses, but in addition the government furnishes a certificate of purity.

The government has also issued standards or definitions for many kinds of distilled spirits, which are of exceeding interest and which are, in brief, as follows:

The names, brand (*eau-de-vie de vin*), wine, alcohol or spirits of wine are limited to products derived exclusively from the distillation of wine.

The name apple brandy or pear brandy is applied to products distilled from apple or pear cider.

Pomace brandy is produced from the distillation of the pomace of fresh grapes with or without the addition of water.

The name Kirsch is limited exclusively to the product of the alcoholic fermentation and distillation of cherries or wild cherries.

The name prune brandy and all other fruit brandies is limited exclusively to the product resulting from the alcoholic fermentation and the distillation of the fruits from which they are named.

The name gin is limited to the alcoholic bev-

erage obtained from the simple distillation with juniper berries of the fermented mash of rye, wheat, barley or oats.

The name rum or tafia is limited exclusively to the product resulting from the alcoholic fermentation and distillation either of the juice of the sugar cane or of the molasses or syrup derived from the manufacture of cane sugar.

Mixtures of the fruit brandies with brandy or commercial alcohol, as also brandy mixed with commercial alcohol, may be designated potable spirits (*eau-de-vie*), or may be designated by their specific names, as, for instance, "apple brandy" accompanied by the word "artificial" (*fantaisie*).

Also any manipulations intended to deceive the consumer as to the quality of the article are forbidden.

These clear definitions are very similar to those adopted by the Association of Official Agricultural Chemists in the United States. The International White Cross Society, at its meeting this year, also promulgated a very extended list of definitions of the terms as applied to distilled spirits as well as to other food products, showing the widespread tendency clearly to define the meaning of terms as applied to food products and to provide the consuming public with means of knowing what they are buying.

In the United States the regulations promulgated by the Internal Revenue Bureau for the proper marking of distilled spirits were still under fire. President Taft reopened the whole question by ordering a new hearing on the question what is whiskey, before Solicitor-General Bowers. A protracted hearing of several weeks was given for all interested to present evidence and, as a result, an opinion was rendered by Mr. Bowers to the President in which he held whiskey to be "the spirituous liquor composed of (1) alcohol derived by distillation from grain; (2) a substantial amount of by-products (often spoken of as congeners) likewise derived by distillation from grain and giving distinctive flavor and properties; (3) water sufficient without unreasonable dilution, to make the article potable; and (4) in some cases—though such addition is not essential—harmless coloring or flavoring matter, or both, in amount not materially affecting other qualities of whiskey than its color or flavor."

A mixture of two or more articles, being each a whiskey within the foregoing description, was held to be designated whiskey, as was also a mixture of one or more whiskeys, with alcohol or a neutral spirit, provided the alcohol or neutral spirit is derived by distillation from grain. A spirit derived from any other substance than grain, or a neutral spirit derived by distillation from grain, but lacking a substantial amount of by-products derived by distillation from grain and giving distinctive flavor and properties, was not held to be properly designated as whiskey. It was also held that "The term whiskey as a drug is not applicable to a different product than whiskey as a beverage."

This opinion aroused intense opposition and voluminous briefs were filed in opposition to it and submitted to the President for his consideration before deciding the question.

The President, after reviewing the evidence, decided against the opinion of Mr. Bowers, holding that all distillates from grain when reduced to a potable strength (45 to 51.5 per cent. alcohol by volume) are entitled to be called whis-

key, in this agreeing with the decision of the English Royal Commission, but going much farther, and holding that the neutral spirits from grain flavored and colored, are an improvement in the process of making whiskey and antedate the process of coloring by ageing in barrels. He required, however, that whiskeys of various kinds be labeled in such a manner as to show the different methods of manufacture. "Straight whiskey," the kind whose right to be called whiskey no one has ever questioned, is distinguished from whiskey made from neutral spirits or alcohol, and mixtures of these two whiskeys may be called "A blend of straight whiskey and whiskey made from neutral spirits."

This decision is entirely opposed to the definitions of the Association of Official Agricultural Chemists and the Association of State Officials having charge of the enforcement of State Food Laws, and reverses the decision of President Roosevelt based upon Attorney-General Bonaparte's opinion. The opinion of the President has been certified to the various executive departments interested in its enforcement for the preparation of regulations to guide in its operation.

The result of all this agitation has been to educate the public as to what "straight whiskey" really is, and the results can be seen in the last report of the Commissioner of Internal Revenue. This shows in the great increase in production and sale of whiskey bottled in bond, which assures the purchaser of obtaining a pure, straight whiskey. This report shows that 6,365,839 tax gallons were bottled in bond during the year 1909, as compared with 4,794,358 tax gallons in 1908, an increase of 1,571,481 tax gallons. There has been steady growth in the bottling in bond trade in the past ten years, a fact which is of interest as showing the effect of the pure food legislation.

LITERATURE, ENGLISH AND AMERICAN. The tables on next page give the number of books in the various departments of literature, published in England and the United States during the years 1908 and 1909.

More than half of these books are of a technical or local character intended for limited classes of readers, and of the books of general interest, a large proportion are duplicated in the two lists, although the proportion of English books appearing in the United States is decreasing, owing chiefly to the increased production of American books. Of 10,901 books enumerated in the American list, 8308 were by American authors, 828 were by English or other foreign authors reprinted in the United States, and 1765 were imported from England, bound or in sheets. The number of volumes published continues to increase at an astonishingly rapid and almost equal rate on both sides the Atlantic. The English and American lists of new publications both contain about 35 per cent. more titles than in 1906. The decline in 1907 was merely temporary, due to the financial depression, and there is no indication that the rising tide of literary production has reached its height, except perhaps in fiction, which has dropped from its unprecedentedly high figure of the year before to about the level of 1906.

FICTION. This caption really includes a more diversified group of books than the others, for novels which have equal popularity are not always rivals, but appeal to very distinct classes

American Book Production	1908		1909	
	New Books	New Editions	New Books	New Editions
Literature and Collected Works.....	606	10	1048	88
Fiction.....	1458	31	1087	11
Theology and Religion.....	776	40	868	35
Useful Arts.....	483	66	661	114
Medical, Hygiene.....	266	71	613	143
Juvenile.....	459	2	668	44
Poetry and the Drama.....	611	11	648	23
Political and Social Science.....	518	31	603	25
Physical and Mathematical Science.....	429	49	577	43
Law.....	579	43	546	45
Biography, Correspondence.....	508	20	542	21
History.....	409	14	525	17
Description, Geography, Travel.....	383	32	445	29
Education.....	348	27	449	18
Fine Arts: Illustrated Gift Books.....	232	9	259	10
Domestic and Rural.....	137	16	188	16
Philosophy.....	171	12	183	15
Works of Reference.....	251	22	107	6
Sports and Amusements.....	71	3	104	5
Humor and Satire.....	51	..	73	..
Totals.....	8745	509	10193	708
	509		708	
	9254		10901	

English Book Production	1908		1909	
	New Books	New Editions	New Books	New Editions
Religion, Philosophy, etc.....	752	70	860	162
Educational, Classical, and Philological.....	549	88	528	101
Fiction, Juvenile Works, etc.....	1819	968	1839	1042
Law, Jurisprudence, etc.....	161	99	161	82
Political and Social Economy, Commerce, etc....	554	117	638	114
Arts and Sciences.....	950	214	978	223
Voyages and Travels, Geography.....	409	104	436	97
History, Biography, etc.....	698	162	752	161
Poetry and Drama.....	344	225	324	151
Year-Books and Serials in Volumes.....	441	...	517	...
Medicine, Surgery, etc.....	227	83	263	84
Belles-Lettres, Essays, etc.....	178	79	242	62
Miscellaneous, including Pamphlets.....	430	..	908	..
	7512	2309	8446	2279
		7512		8446
		9821		10725

of readers. The following list of the "best sellers" for 1909, as reported by the *Bookman*, arranged approximately in the order of their popularity, shows more the diversity than the trend of the public taste: *Katrina*, by Elinor Macartney Lane; *The Trail of the Lonesome Pine*, by John Fox, Jr.; *Peter*, by Francis Hopkinson Smith; *54-40 or Fight*, by Emerson Hough; *The Man in Lower Ten*, by Mary Roberts Rinehart; *The Inner Shrine*, Basil King; *Septimus*, by William J. Locke; *Lewis Rand*, by Mary Johnston; *Mr. Opp*, by Alice Hegan Rice; *The White Sister*, by Francis Marion Crawford; *The Goose Girl*, by Harold Macgrath; *A Certain Rich Man*, by William Allen White; *The Red City*, by S. Weir Mitchell; *The Man from Brodney's*, by George Barr McCutcheon; *The Missioner*, by E. Phillips Oppenheim; *The Red Mouse*, by W. Hamilton Osborne; *The White Mice*, by Richard Harding Davis; *The Bride of the Mistletoe*, by James Lane Allen; *Truxton King*, by George Barr McCutcheon; *The Silver Horde*, by Rex E. Beach; *The Danger Mark*, by Robert W. Chambers; *The Testing of Diana Mallory*, by Mrs. Humphry Ward; *The Bronze Belt*, by Louis Vance; *The Chippendales*, by Robert Grant; *The Story of Thyra*, by Alice Brown; *The Romance of a Plain Man*, by Ellen A. G. Glasgow; *The Calling of Dan Matheus*, by Harold Bell Wright; *Bella Donna*, by Robert S. Hichens.

Of these, *The Trail of the Lonesome Pine*, *The Man from Brodney's*, *Peter*, *Lewis Rand* and *The Testing of Diana Mallory*, were among the best selling novels of 1908, and some of the others were included in this review last year. Considering the above list as indicative of popular taste, it is of interest to observe that, on the whole, they are of a decidedly wholesome character, notwithstanding the fact that novels dealing with sex problems in an unconventional manner are being produced in large numbers. There are only two or three of the above-named whose propriety could be called in question by anyone. The chief elements of popularity are sentiment, mystery and adventure. Those not mentioned last year may be briefly characterized: *Katrina*, a charming Irish Girl; *54-40 or Fight*, the acquisition of Oregon; *The Man in Lower Ten*, detective story; *The Inner Shrine*, a life shadowed by a thoughtless act; *Septimus*, an amusingly unworldly and self-sacrificing genius; *Mr. Opp*, a masculine "Mrs. Wiggs"; *The White Sister*, Crawford's usual Italian melodrama; *The Goose Girl*, a princess in disguise; *A Certain Rich Man*, an accurate picture of Kansas in pioneer days and the evolution of a plutocrat; *The Missioner*, philanthropic work in an English village; *The Red Mouse*, political intrigue; *The White Mice*, Spanish-American adventure; *The Bride of the Mistletoe*, poetical treatment

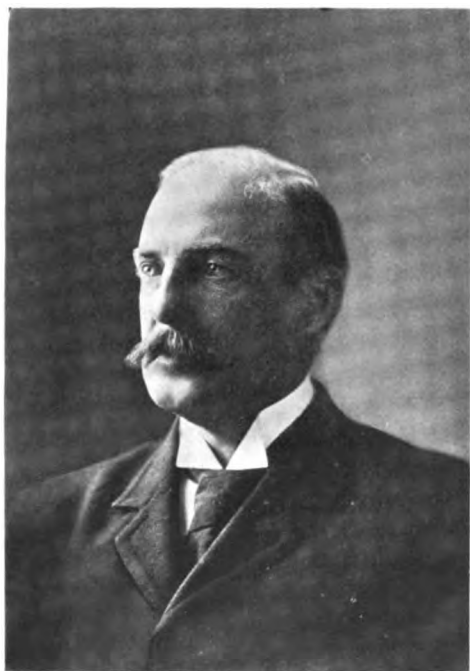


Courtesy of "Current Literature"

ALGERNON CHARLES SWINBURNE



RICHARD WATSON GILDER



F. MARION CRAWFORD



SARAH ORNE JEWETT

FOUR EMINENT WRITERS WHO DIED IN 1909

of an unpleasant theme; *Truston King*, more Graustark adventure; *The Danger Mark*, New York society; *The Bronze Bell*, mystery; *The Chippendales*, Boston Brahmins; *The Story of Thyra*, a modern Hester Prynne; *Romance of a Plain Man*, from barefoot boy to railroad president; *The Calling of Dan Mathews*, the tribulations of a minister; *Bella Donna*, an evil woman in an Egyptian setting. The leisurely and reminiscent style of novel writing is being cultivated with increasing success. William De Morgan in *It Never Can Happen Again* devotes 320,000 words to the intricacies of a matrimonial tangle caused by the English law prohibiting marriage with a deceased wife's sister, and to genial character sketches of all persons concerned in it. *Margarita's Soul*, by Josephine Daskam Bacon, was published under the pseudonym of "Ingraham Lovell." Purporting to be "The Recollections of a Man of Fifty," it depicts a beautiful and gifted woman who had been reared in strict seclusion. *The Old Wives' Tale*, by Enoch Arnold Bennett, is another story of "the Five Towns," remarkable for the skill shown in keeping the reader's attention through a long-continued narrative of commonplace incidents. Mr. Bennett also produced during the year *The Glimpse*, an adventure of a soul temporarily released from the body and seeing the world from another standpoint. *Araminta*, described by John Collins Snaith, is almost as charming and naïve as "Margarita." The custom of continuing favorite characters through a series of books is becoming as common in adult fiction as it has been in juvenile. The Baroness von Hutten zum Stolzenberg in *Kingsmead* brings forward Pam and Tommy for the fourth time; *Anne of Avonlea*, by Lucy Maud Montgomery, is a sequel to *Anne of Green Gables*; and Maurice Hewlett in *Open Country* sticks to his beloved Senhouse, the gipsy, flower-planting, letter-writing anarchist of *Half-Way House* and is now continuing his adventures as a serial. Mrs. Humphry Ward in *Marriage à la Mode*, called in England *Daphne*, attacks the American divorce system by showing its disastrous effect upon the lives of an English fortune-hunter and an American heiress. Herbert George Wells seems to have abandoned his scientific and Utopian romances, and is devoting himself to the complexities of everyday life, particularly the marriage question. He has produced two long novels crowded with life-like characters: *Tono-Bungay*, the rise and fall of a patent-medicine millionaire; and *Ann Veronica*, the unrest of the modern woman finding expression in various unconventional ways. Two volumes of short stories by Rudyard Kipling appeared during the year, *Aftab the Funnel*, thirty sketches and tales contributed to Anglo-Indian periodicals in 1888-90; and *Actions and Reactions*, containing eight recent stories, among them a very clever *tour de force* "With the Night Mail," abounding in unheard of technicalities of future aviation. Gilbert Keith Chesterton gives a running debate between an atheist and a Catholic in *The Ball and the Cross*, a fantastic mixture of symbolism and adventure, similar to *The Man Who Was Thursday*. Eden Phillpotts has two volumes this year: *The Haven*, dealing with the sailors of Brixham, and *The Three Brothers*, with Dartmoor peasants. Henry James's *Julia Bride* analyzes the complications arising from the divorce habit. *Fraternity*, by John Galsworthy, contains some

remarkable character-sketching and shows the involuntary inter-relations between rich and poor. *Martin Eden*, by Jack London, deals with the struggle of a seaman to secure recognition as an author. *The Glory of the Conquered*, by Susan Glaspell, is notable only because of its unusual theme, the heroism of medical research. Elizabeth Robins (Mrs. G. R. Parkes) in *The Florentine Frame* deals with the unpleasant theme of the love of mother and daughter for the same man. *The Hungry Heart*, by David Graham Phillips, is a somewhat sensational sex-problem novel. *The Prince of Dreamers*, by Flora Annie Steel, is the story of Akbar, Emperor of India in Elizabeth's reign. The appearance of a new Messiah in modern Egypt is the subject of Hall Caine's *The White Prophet*. Other noteworthy novels of the year are *The Southerner*, by "Nicholas North," showing how Southern conservatism hampers a strong individuality; *True Tilda*, by A. T. Quiller-Couch; *Sebastian* (English title, *The Incomplete Etonian*), by Mrs. Julia Frankau (Frank Danby, pseudonym); *Diamond Cut Paste*, by Agnes and Egerton Castle; *Stradella*, by F. Marion Crawford, the story of an Italian seventeenth-century musician; *The Straw*, by Rina Ramsay, a good, "horsey" piece of fiction; *The Price of Lis Doris*, by "Maarten Maartens" (Joost Marius Willem van der Poorten Schwartz); *Candles in the Wind*, by Mrs. Maud Driver, an Anglo-Indian romance; *The Unlit Lamp*, by Algernon Gissing; *The Tittle Market*, by Emily Post; *Multitude and Solitude*, by John Masfeld; *The Way Things Happen*, by Hugh de Selincourt. Among the best of the short stories are: *Northern Lights*, by Sir Gilbert Parker, Canadian Northwest; *Friendship Village Love Stories*, by Zona Gale; *The Score*, by "Lucas Malet" (Mrs. Mary St. Leger Harrison), containing two stories; and two volumes of "O. Henry's" (Sidney Porter) brilliant but hastily written tales, *Options* and *Roads of Destiny*.

POETRY AND DRAMA. Although the usual number of volumes of verse have appeared during the year, none of them show distinction or popularity. The sensation created by William Watson's *New Poems* was due more to the personality of "The Woman with the Serpent's Tongue" than any unusual merit. Thomas Hardy having completed his ambitious undertaking, *The Dynasts*, published a volume of miscellaneous verse, *Time's Laughingstocks*. The beginning and end of George Meredith's career are represented by *Poems Written in Early Youth* and *Last Poems*. The final work of the unfortunate John Davidson comes to us in *Fleet Street and Other Poems*, expressing through the personality of Cain his spirit of defiance and discontent. William Dean Howells in a poetic dialogue, *The Mother and the Father*, depicts the emotions of the parents at the birth, marriage and death of their daughter. *Artemision*, by Maurice Hewlett, contains Hellenic idyls, sonnets and lyrics. *The Cliffs*, by Charles M. Doughty, on the contrary, is a dip into the future, and treats of the invasion of England by airships. John G. Neihardt, in his *Man-Song*, gives expression to a primitive masculinity. Richard Le Gallienne's *New Poems* show no advance over his earlier work. The amusing ballads of *Carmina*, by T. A. Daly, deserve mention for his clever handling of the Italo-American dialect as well as the more fam-

far Irish. *The White Bees* contains all of Henry van Dyke's verse of the last five years, except *The House of Rimmon*.

Poems, by the late Richard Watson Gilder; *Poems*, by Percy MacKaye; *Poems*, by Arthur Christopher Benson; *Each in His Own Tongue and Other Poems*, by William Herbert Carruth, and *King Alfred's Jewels*, a dramatic poem, by Kate Nichols Trask, are to be here included.

Of the plays appearing in print the most prominent are those dealing with vital social problems: *The Melting Pot*, by Israel Zangwill, an enthusiastic championship of the amalgamation of races taking place in America; *Strife*, by John Galsworthy, an impartial picture of the struggle between labor and capital; *The Great Divide*, by William Vaughn Moody, the distress of a New England conscience in the Arizona climate, and a translation of Maurice Maeterlinck's symbolic child play, *The Blue Bird*.

ESSAYS, CRITICISM AND LITERARY BIOGRAPHY. The unusually large number of collected works and new editions noticeable in the table of American publications is in part due to celebration of the centenaries of Gladstone, Poe, Darwin, Lincoln, Tennyson, Fitzgerald and Holmes, the second centenary of Johnson and the third of Shakespeare. Biographies, character sketches, romances, selections, appreciations, memorials and eulogies are brought out in profusion by the popular fondness for such anniversary commemorations. The publishers' book-list for 1909 gives 70 such titles under "Lincoln." Most of this occasional literature, however meritorious or useful, is of ephemeral interest only. *The Man Shakespeare and His Tragic Life Story*, by Frank Harris, gives unusual prominence to the personality of the poet, while Algernon Charles Swinburne's essay on *Shakespeare* and analysis of *Three Plays of Shakespeare* eulogizes with his usual eloquent exaggeration, and Charles Frederick Johnson tells of *Shakespeare and His Critics*. *The Life and Times of Laurence Sterne*, by Wilbur C. Cross, is the most thorough and serious study of this author that has ever been made. The first complete collection of the *Letters of Percy Bysshe Shelley* has been made by Roger Ingpen, and A. Clutton-Brook has written a new life of *Shelley: The Man and the Poet*. Two lives of *Samuel Pepys* have appeared, by Miss E. Hallman Moorehouse and Percy Lubbock, respectively, the former being the more lively and extensive of the two. Lewis Melville has devoted over ten years to collection of published and unpublished material relating to *William Makepeace Thackeray*, and includes it in his two-volume biography. *The Love Letters of Thomas Carlyle and Jane Welsh*, written in the period from 1821 to 1826, have been published in full by Alexander Carlyle, and throw a new light on this much-discussed relationship, though their literary value is small. *Recollections of a Long Life*, by Lord Broughton, edited by his daughter, Lady Dorchester, with additional extracts from his diaries, is chiefly of interest from its plentiful reminiscences of Byron. Our knowledge of Dr. Johnson's circle is enlarged through the biography of *Giuseppe Baretti*, by Lucy Collison-Morley, dealing with his life in Italy, as well as in England. Francis W. Newman, the younger brother of the more celebrated Cardinal, is the subject of a memoir by L. Giberne Sieveking. Other works which must be mentioned in connection with literary

biography are, the *Journals*, by Ralph Waldo Emerson, edited by E. W. Emerson and Waldo Emerson Forbes, the two volumes covering the years 1820-1832; *Memories of Sir Walter Scott*, by James Skene edited by Basil Thomson, and *Sir Walter Scott's Friends*, by Florence MacCunn; *Walt Whitman*, by George Rice Carpenter; *George Canning and His Friends*, a volume of letters, edited by Captain Josceline Bagot; *My Story*, an autobiography, by Hall Caine, interesting chiefly from its anecdotes of Rossetti and his coterie; *William Blake*, by Basil de Selincourt; *George Meredith in Anecdote and Criticism*, by J. C. Hammerton; *Recollections*, by Washington Gladden; *a Memoir of William Walpole*, edited by A. Francis Stewart; *The Life of Richard Brinsley Sheridan*, by Walter Sichel; *A Georgian Pageant*, by Frank Frankfort Moore, an interesting account of Johnson, Goldsmith and their contemporaries; *Friedrich Nietzsche*, by M. A. Mägge; *Old Friends*, by William Winter, reminiscences of American men of letters; Moncure D. Conway, *Addresses and Reprints*, 1850-1907. No other book of literary biography and criticism has approached in popularity Gilbert Keith Chesterton's *George Bernard Shaw*. Any book on that subject or by that author would attract attention, so it is no wonder this combination of attractions has made the volume sell like a novel. These two paradoxical philosophers of the day delight in taking antithetical attitudes and in sharpening their wits upon each other. Chesterton has constituted himself the champion of orthodoxy and conventionality and his popularity is probably due in large part to his demonstration that brilliant writing is not necessarily a monopoly of the radicals. His volumes of journalistic essays, such as *Tremendous Trifles*, are widely read. An essayist almost as prolific, but with a quieter and more graceful style, is Edward Verrall Lucas, whose collections of this year is entitled *One Day and Another*. The sixth volume of the *Shelburne Essays*, by Paul Elmer More, deals more with philosophy than literature, being studies of religious dualism in Indian, Greek and more modern writers. Other volumes of essays on miscellaneous topics are: *Yet Again*, by Max Beerbohm; *The Reaping*, by Edward Frederic Benson; *Wayside Wisdom*, by E. M. Martin; *The Human Way*, by Louise Collier Wilcox; *Carlyle's Laugh and Other Surprises*, by Thomas Wentworth Higginson; *The American of the Future and Other Essays*, by Brander Matthews; *Magazine Writing and the New Literature*, by Henry Mills Alden; *On Nothing and Kindred Subjects*, by Hilaire Belloc.

The *Oxford English Dictionary*, on historical principles, edited by Sir James A. H. Murray and others, has reached its seventh thick quarto volume, concluding the letter V. The old "Webster" appears as the *New International Dictionary of the English Language*, completely revised under the editorship of W. T. Harris and F. Sturges Allen. Thomas Raynesford Lounsbury, in *English Spelling and Spelling Reform*, exposes the inconsistencies and inconveniences of the prevailing system, and argues for its simplification. J. B. Williams gives us a *History of English Journalism*. *The Springs of Helicon*, by John William MacKail, is a study in the progress of English poetry from Chaucer to Milton. The *Oxford Lectures on Poetry*, by Andrew Cecil Bradley, are largely devoted to

Shakesperian criticism. Arthur Symonds's *Romantic Movement in English Poetry*, includes every writer who was born before 1800 and survived into the nineteenth century, a brilliantly annotated catalogue. A critical and comparative study of *The Autobiography*, comprising eight hundred examples in various languages, has been made by Mrs. Anna Robeson Burr. Other noteworthy works of this class are: *Essays on Modern Novelists*, by William Lyon Phelps; *English Literature in the Nineteenth Century*; a concise *Manual of American Literature*, prepared for the Tauchnitz library, by Theodore Stanton; *Verse Satire in England Before the Renaissance*, by Samuel Marion Tucker. On foreign literature we have a life of *Charles-Augustin Sainte-Beuve*, by George McLean Harper; *Francesco Petrarca: Poet and Humanist*, by Maud F. Jerrold, an able work; *Chateaubriand and His Court of Women*, by Francis Gribble; *The French Procession*, by Mary Duclaux (Mary F. Robinson), essays on great writers from Racine to Anatole France; a *History of German Literature*, by Calvin Thomas; a *Literary History of Rome*, by J. Wright Duff; *Hellas and Hesperia, or The Vitality of Greek Studies in America*, by Basil L. Gildersleeve, with which should be coupled the Lowell lectures of John Pentland Mahaffy on *What Have The Greeks Done for Modern Civilization?* *The Literary History of Russia*, by Alexander Brückner; *Egoists: A Book of Supermen*, by James Gibbon Huneker, sketches of Stendhal, Baudelaire, Huysmans, etc.; *Six Masters in Disillusion*, by Algar Labouchere Thorold, Fontenelle, Merimée, Fabre, Huysmans, Maeterlinck and France; *Verse Plays of Molière*, a new translation, by Curtis Hidden Page; *Mystery of Education and Other Academic Performances*, by Barrett Wendell.

RELIGION AND PHILOSOPHY. The great interest now being taken in religious questions is evidenced by the rapid and continuous increase in the number of volumes appearing in this department. At the present rate it will soon overtake that of fiction in America and England, and some of the books have a sale as large as the popular novels. The most conspicuous tendency of recent years is the growth of what might be called, for want of a better name, the literature of optimistic suggestion. It defies a close classification because the books range from imperceptible gradations from those of a theological and ecclesiastical tone to those that are little more than manuals of practical dietetics. They are all, however, quite definitely characterized by their intent to secure health and happiness by strengthening the will power and banishing the inhibiting thoughts of self-distrust and foreboding; what Professor James calls "the religion of healthy mindedness." These books are too numerous and influential to be ignored, but are in general not sufficiently distinctive from a literary point of view to require specification here. Mention should be made, however, of three works of a critical, rather than a propagandist or inspirational character: *Psychotherapy*, by Hugo Münsterberg, based upon his success in the treatment of functional nervous diseases by suggestion in the Harvard laboratory; *Mesmerism and Christian Science*, by Frank Podmore, an interesting history of the various forms of mental healing from Mesmer to the present day; and *Mental Medicine*, by Oliver Huckel. Mysticism has been receiving greater

attention and more respectful consideration from psychologists and historians since the publication of William James's *Varieties of Religious Experience* (1902), and this year an important contribution is made to the subject in Rufus Matthew Jones's *Studies in Mystical Religion*, a serious and sympathetic account of Christian mystics from the beginning to the end of the Commonwealth. A slighter book is *Aspects of Christian Mysticism*, by W. Major Scott. Doubtless the interest in mysticism is due in part to the popularity of the pragmatic philosophy which lays emphasis on immediacy and personal experience. Professor James has defended his practical conception of truth and its relation to reality in *The Meaning of Truth*, and in *A Pluralistic Universe* discusses various philosophers, especially Hegel, Fechner and Bergson, from the pragmatic standpoint. On the other side, Professor Münsterberg in a solid work on *The Eternal Values*, upholds his form of idealism against the attack of the relativists, and James Bissett Pratt, in *What Is Pragmatism?* adversely criticises the new philosophy in a popular style. Public attention has been directed to spiritism by the visit to this country of Eusapia Palladino, the Italian medium, whose phenomena have gained the credence of some distinguished European scientists in spite of her well-known tendency to use trickery. Among the books on psychical research the most prominent are: *After Death—What?* by the late Cesare Lombroso; *How I Know that the Dead Return*, by W. T. Stead; *Eusapia Palladino*, by Hereward Carrington, who brought her to the United States; *The Survival of Man*, by Sir Oliver Lodge. Notwithstanding the revival of interest in these efforts to obtain experimental proof of immortality, Goldsworthy Lowes Dickinson in his lecture, *Is Immortality Desirable?* argues that the question has less interest for mankind than is generally supposed. Two valuable single volume Bible dictionaries appeared this year: *The Standard Bible Dictionary*, edited by Malancthon W. Jacobus, E. E. Nourse and Andrew C. Zenoa; and a *Dictionary of the Bible*, edited by James Hastings, John C. Lambert and Shailer Mathews. Both are designed to put the results of modern research and criticism at the command of ministers and laymen, for whom the larger dictionaries of Hastings and Cheyne are too elaborate and expensive. Other works of interest in this field are: *Origins of Christianity and Spirit of Christ in Common Life*, by C. Biggs; *The Gospel and Human Needs*, by John Figgis; *Studies in Christianity*, by Borden Parker Bowne; *Luke, the Physician*, by W. M. Ramsay; *The Pauline Epistles*, by Robert Scott; *Christianity at the Cross Roads*, by the late George Tyrrell; *The Religion of the Future*, by ex-President Charles W. Eliot of Harvard; *The Teaching of Jesus Concerning the Future*, by Henry Burton Sharman; *Biblical Criticism and Modern Thought*, by W. G. Jordan; *The Psychological Phenomena of Christianity*, by George Barton Cutten; *Modern Thought and the Crisis in Belief*, by Robert Mark Wenley; *The Will to Doubt*, by Alfred Henry Lloyd; *The Sikh Religion, Its Gurus, Sacred Writings and Authors*, by Max Arthur Macauliffe; *Religious Attitude and Life in Islam*, by Duncan Black Macdonald; *Religion of Babylonia and Assyria*, by Robert William Rogers. Here may be mentioned a volume which can neither be ignored nor classi-

ned, *Scenes and Portraits*, by Frederic Manning, a series of imaginary conversations on life, philosophy and religion, beginning with Adam and Eve in Eden and ending with Renan and Leo XIII. in the next world.

EDUCATION. Most of the numerous books in this field are of a technical nature, but the following are some of those which appeal to a larger circle of readers: *Social Development and Education*, by M. V. O'Shea; *Education and Industrial Evolution*, by Frank Tracy Carlton; *Psychology of Thinking*, by Irving Edgar Miller; *Psychology and the Teacher*, by Hugo Münsterberg; *The Reorganization of Our Colleges*, by Clarence F. Birdseye; *The Women of a State University*, the working of co-education in the University of Wisconsin, by Mrs. Helen Remington Olin; *Impressions of American Education in 1908*, by Sarah A. Burstall; *Education in the Far East*, by Charles Franklin Thwing; *Japanese Education*, by Baron Kikuchi; *History of Education Before the Middle Ages*, by Frank Pierrepont Graves; *The Study of Religion in the Italian Universities*, by the Rev. L. H. Jordan and Beldassare Labanca.

HISTORY. The very energetic production of historical literature, particularly American, during the last few years, seems to have been followed by a lull, in which comparatively few original studies of importance are being made. *The Cambridge Modern History*, planned by the late Lord Acton and carried out by the coöperation of many specialists, published its eleventh volume, covering the period from 1845 to 1871. The handsomely illustrated and comprehensive *History of the United States*, by Elroy McKendree Avery, is one-third completed by the publication of its fifth volume, covering the period from the French and Indian War to the Declaration of Independence. The tercentenary of the discovery of the Hudson River brought out many books on New York, historical and descriptive, of which Mrs. Schuyler Van Rensselaer's *History of the City of New York in the Seventeenth Century*, is the most important. A briefer and more popular narrative is given by William Elliot Griffiths in his *Story of New Netherland*. Mrs. Marion McMurrough Mulhall's *Explorers in the New World Before and After Columbus*, is chiefly of interest for its story of the Jesuit missions of Paraguay and its pre-Columbian maps. *Our Naval War with France*, by Gardner Weld Allen, is a clear and readable account of little known incidents of the close of the eighteenth century from contemporary material.

In French history we have a short *History of the French Revolution*, by Robert Matteson Johnson; an anecdotal account of the political, social, literary, scientific and artistic progress of the *Third French Republic* to the end of 1908, by Frederick Lawton; a sketch of *The Court of Louis XIII.*, by Mrs. K. A. Patmore, devoted especially to Richelieu; *The Wars of Religion in France*, 1559-1576, by James Westfall Thompson, a scholarly work incorporating recent research; *The Court of a Saint, Louis IX.*, by Winnifred F. Knox. P. Hume Brown, who published the first volume of his *History of Scotland* eleven years ago, reached the third volume this year.

On the British Empire and its dependencies we have: *A Century of Empire*, by Sir Herbert Maxwell; *History of Canada*, 1763-1812, by Charles Prestwood Lucas; *India Through the*

Ages, by Flora Annie Steel, a popular and picturesque history of Hindustan; *A Colonial Autocracy*, New South Wales under Governor Macquarie, 1810-1821, by Miss Marion Phillips; *The Last Years of the Protectorate*, 1656-1658, by Charles Harding Firth; *George I. and the Northern War*, by James Frederick Chance, a study of British-Hanoverian policy in the North of Europe in the years 1709-1721; *A History of Sarawak Under Its Two White Rajahs*, 1839-1908, by S. Baring Gould and C. A. Bampfyld; *Burma Through the Centuries*, by J. Stuart; *Memoirs of Baber, Emperor of India, First of the Great Moghuls*, by Lieutenant-Colonel F. G. Talbot. William Warde Fowler describes *Social Life at Rome in the Age of Cicero*. Part II. of Demetrius C. Boulger's *History of Belgium* includes the years 1815-1865. The history of *Italy from 1494 to 1790*, is told by Mrs. H. M. Vernon (K. Dorothea Ewart).

GENERAL BIOGRAPHY. The year 1909 was rich in biographical literature partly owing to the influence of the centenary celebrations already mentioned. Probably the most notable book of the year in this field is *The Autobiography of Sir Henry Morton Stanley*, supplemented from his letters, diaries and notebooks by his wife, Dorothy Stanley. The remarkable life-story of *Sir Robert Hart*, who was the head of the Chinese Customs from 1863 to 1908, has been told by his niece, Julia Bredon. That pioneer in psychical research and crystal-gazing, *John Dee*, has been made the subject of a biography by Miss Charlotte Fell Smith. Miss Alice Shield continues her studies of *The Pretenders* by a volume of *Henry Stuart, Cardinal of York, and His Times*. Miss Alice Drayton Greenwood has published her first volume of the *Lives of Hanoverian Queens of England*.

Other English biographies and memoirs of interest are: *The Life and Letters of James Wolfe*, by Breckles Wilson; *The Last Days of Charles II.*, by Raymond Crawford; *The Girlhood of Queen Elizabeth*, by Frank A. Mumby; *Lady Hester Stanhope*, by Mrs. Charles Roundell; *The Life of Honorable Mrs. Norton*, by James Gray Perkins; *The Correspondence of Priscilla, Countess of Westmorland*, edited by her daughter, Lady Rose Weigall; *Memoirs of Fifty Years*, by Lady St. Helier (Mary Jeune); and *The Recollections of Lady Cardigan*, which had a *succès de scandale* on account of her frankness in discussing her contemporaries.

French biographies are numerous as usual, among them: *The Maid of France*, being the story of the life and death of Jeanne d'Arc, by Andrew Lang; *The Rose of Savoy*, Marie Adelaide, by Hugh Noel Williams; *Louis XVI. and Mary Antoinette*, by Andrew C. P. Haggard; *Madame Elizabeth de France*, by the Honorable Mrs. Maxwell; *The Life of Mirabeau*, by S. G. Tallentyre; *The King Who Never Reigned: Memoirs Upon Louis XVII.*, by Eckard and Naundorff; *Napoleon's Brothers*, by A. Hilliard Atteridge. Mrs. Ady (Julia Cartwright) devotes two large volumes to "the perfect courtier," Baldassare Castiglione, 1478-1529. George Macaulay Trevelyan tells the story of the campaign of 1860 in *Garibaldi and the Thousand*. R. Nesbit Bain in *The Last King of Poland and His Contemporaries*, gives a vivid picture of the downfall of Poland. *The Life and Times of Master John Hus*, by Franz H. H. V. Litzow, is a thorough and impartial study of the Bohemian reformer. Miss Ida Ashworth Taylor gives us

lives of *Queen Christiana of Sweden* and of *Henry Edward Manning*, "cardinal-democrat."

Of American biography and memoirs we have *Retrospectious of an Active Life*, by John Bigelow, ninety years in three volumes; *Recollections of Grover Cleveland*, by George F. Parker, written from intimate acquaintance; *The Autobiography of Nathaniel Southgate Shaler*, geologist and man of letters; *Robert V. Haynes and His Times*, by Theodore Behone Jervey; *Robert Fulton and the Claremont*, by Mrs. Alice Cary Sutcliffe; *Stephen A. Douglass*, by Clark Ezra Carr; the second and concluding volume of the *Letters and Journals of Samuel Gridley Howe*, edited by his daughter, Laura E. Richards, dealing with his life in Boston from 1832 to 1876. Of the numerous lives of artists, musicians and actors, there is space to mention only a few: *Raphael*, by Adolf Paul Oppe; *Michael Angelo and Ghirlandaio*, by Gerald Stanley Davies; *John Hopper, R. A.*, by William McKay and W. Roberts; *Grieg as Man and as Composer*, by Henry Theophilus Finck; *Johann Sebastian Bach*, by Sir Hubert H. Parry; *Handel*, by R. A. Streatfeild; *Joseph Jefferson and His Friends*, by Eugenie Paul Jefferson, his daughter-in-law; *Melba's Life, Art and Profession*, by Agnes C. Murphy.

TRAVEL AND DESCRIPTION. Each year shows a large increase in the number of new books descriptive of foreign scenes and peoples, often lavishly or handsomely illustrated with halftones or color plates. These are useful to persons interested in these particular localities, but few of them are sufficiently distinctive to be discussed here. Four books dealing with familiar places require mention because of their charm of style. *Seven English Cities*, by William Dean Howells; *Italian Hours*, by Henry James; *The Wanderer in Paris*, by Edward Verrall Lucas; *The Wander Years*, by James Henry Yoxall. The year was distinguished by the publication of two narratives of exploration in unknown regions of the earth. Works of as much interest and novelty have been rare in the past and will be impossible in the near future. They are the story of the British Antarctic Expedition, 1907-9, *The Heart of the Antarctic*, by Sir Ernest H. Shackleton, with an account of the first journey to the South Magnetic Pole by Professor Edgeworth David; and *Trans Himalaya*, by Dr. Sven Hedin, giving the results of his exploration of a new mountain range on the borderland of Tibet, to which he has given that name. In this connection reference may be made to *Five Months in the Himalaya*, by Arnold L. Mumm; *Peaks and Glaciers of Nun Kun*, by Fanny B. and William H. Workman; *Kashmir*, by Major Molyneux and Sir Francis Younghusband; *Around Afghanistan*, by Major de B. de Lacoste; *Among the Wild Tribes of the Afghan Frontier*, by Theodore Leighton Pennell; *The Frontiers of Baluchistan*, by G. P. Tate.

The establishment of constitutional government in Turkey and the annexation of Bosnia and Herzegovina by Austria attracted public attention to these two countries; as shown by *The Revolution in Constantinople and Turkey*, by Sir William Ramsay; *The Awakening of Turkey*, by E. F. Knight; *Turkey in Revolution*, by Charles Roden Buxton; *The Soul of a Turk*, by Victoria de Bunsen; *Harcmlık*, some pages from the life of Turkish women, by Demetra Brown; *High Albania*, by M. Edith Durham;

Bosnia and Herzegovina, by Maude M. Holbach; *Hungary and the Hungarians*, by W. B. Forster Bovill; *Hungary of To-day*, by Members of the Hungarian Government; *The Development of Hungarian Constitutional Liberty*, by Count Julius Andrássy; *Austria-Hungary*, by Geoffrey Drage; *The Austrian Court in the Nineteenth Century*, by Sir Horace Rumbold; *Racial Problems in Hungary*, by "Scotus Viator." On Africa we have: *The Northward Trek*, by Stanley Portal Hyatt; *Southern Rhodesia*, by Percy F. Hone; *Pre-Historic Rhodesia*, by R. N. Hall; *The Basutos*, by Sir Godfrey Lagden; *The Crime of the Congo*, by Sir Arthur Conan Doyle. On South and Central America: *The American Egypt: A Record of Travel in Yucatan*, by Channing Arnold and F. J. Tabor Frost; *Mexico*, by C. Reginald Enoch; *The Journal of an Expedition Across Venezuela and Colombia, 1906-1907*, by Hiram Bingham; *The Andean Land*, by Charles S. Osborn; *Wanderings in South America*, by Charles Waterton; *Peru and Mexico*, by C. Reginald Enoch; *A History of Jamaica*, by W. J. Gardiner.

The following are some of the miscellaneous books of travel: *A Holiday in Connemara*, by Stephen Gwynn; *The Norfolk and Suffolk Coast*, by W. A. Dutt; *Essex*, painted by L. Burleigh Bruhl, described by A. R. Hope Moncrieff; *England and the English*, from an American point of view, clever and fair-minded studies by Price Collier; *Holland of To-day*, by George Wharton Edwards; *Siena: The Story of a Medieval Commune*, by Ferdinand Schevill; *Spain of To-day from Within*, by Manuel Audviar; *Cathedral Cities of Spain*, by W. W. Collins; *Going Down From Jerusalem*, by Norman Duncan; *New New York*, by John Charles Van Dyke; *Picturesque Hudson*, by Clifton Johnson; *Americans: An Impression*, by Francis Alexander; *Handbook of Alaska*, by Major-General A. W. Greeley; *The Confessions of a Beachcomber in tropical Queensland*, by E. J. Banfield; *Australia*, by W. H. Lang; *Letters from China*, with particular reference to the Empress Dowager and the women of China, by Sarah Pike Conger; *Things Korean*, by Horace Newton Allen; *Evolution of New China*, by William N. Brewster; *The People of the Polar North*, by Knud Rasmussen.

SOCIAL AND POLITICAL SCIENCE. In this department we shall consider only books of interest to the general reader. On the race question and problems of city life we have *The Story of the Negro*, by Booker Taliaferro Washington, what the negro has accomplished in the way of attaining a higher civilization; *The German Element in the United States*, its political, moral, social and educational influence, by Albert Bernhard Faust; *The Immigrant Tide*, its effect on Europe and America, by Edward A. Steiner; *Chinese Immigration*, by Mrs. Mary Robert Coolidge; *The Spirit of Youth and the City Streets*, by Jane Addams, based on her Hull House experiences; *Misery and Its Causes*, by Edward T. Devine, a scientific analysis of poverty and disease and a discussion of the methods of their alleviation; *The Family and the Nation*, by William C. D. Whetham and Catherine D. Whetham, a study in natural inheritance and a plea for eugenics; *The Government of American Cities*, by Horace Edward Deming. The leading books on opposite sides of the much debated suffrage question are *Equal Suffrage*, by Helen Laura Sumner, a careful study of the working of the system in Colorado;

and *The Wrong and Peril of Woman Suffrage*, by the Rev. James Monroe Buckley, an argument against it. For and against Socialism there are *Socialism in Theory and Practice*, by Morris Hillquit, one of the leaders of the Socialist party in the United States; *Socialism and Government*, by J. Ramsay Macdonald, advocating a more moderate form of Socialism; *Economic Heresies*, by Sir Nathaniel Nathan, opposing both the orthodox economists and the socialists; *The Menace of Socialism*, by W. Lawler Wilson, a warning of revolution; and *Socialism in Social Government*, by W. G. Towler, an unfavorable criticism of British municipal experiments. On economic history, *Sixty Years of Protection in Canada, 1846-1907*, by Edward Porritt, an original study of Canadian tariff policy; *Evolution of Modern Germany*, by William Harbut Dawson, chiefly concerned with commercial and industrial progress; *Outlines of the Economic History of England*, a study in social development from the Saxon invasion, by H. O. Meredith.

LITERATURE, FRENCH. See FRENCH LITERATURE.

LITERATURE, GERMAN. See GERMAN LITERATURE.

LIVE-STOCK EXPOSITION. See AGRICULTURE.

LOAN AND TRUST COMPANIES. No branch of America banking has expanded so rapidly in recent years as that represented by the loan and trust companies. Thus in 1898 the Comptroller of the Currency's report showed only 246 such companies, while in 1909 it showed 1079. The aggregate resources in 1909 were \$4,008,534,000, an increase of 41 per cent. in four years. These resources equaled about one-fifth the total resources of all banks in the United States, and more than two-fifths those of all national banks. They included loans on real estate and mortgages owned, \$377,318,000; loans on other collateral security, \$1,222,881,000; other loans and discounts, \$460,550,000; stocks and bonds, \$990,190,000; cash on hand, \$264,000,000. The liabilities included capital and surplus, \$856,145,000; and individual deposits, \$2,835,835,000. These companies held 20.2 per cent. of all individual deposits in 1909, as compared with 14.2 per cent. in 1900. The deposits in 1909 included \$657,697,000 of savings deposits, credited to 1,965,000 depositors, and drawing an average of 3.43 per cent. interest. The non-savings deposits drew an average of 2.34 per cent. interest. The cash on hand was slightly less than 8 per cent. of the deposits subject to check.

Pennsylvania ranked first in the number of loan and trust companies with 278, of which 60 were in Philadelphia and 41 in Pittsburg, New York with only 85 stands preëminent in the resources of its companies. Thus the Pennsylvania companies had aggregate resources of \$635,377,000, the 42 Illinois companies, \$450,197,000, and the New York companies, \$1,574,889,000. New York City had 39 companies with aggregate resources of \$1,318,775,000, and Chicago 19 with resources of \$415,282,000. See BANKS AND BANKING.

LODGE, GEORGE CABOT. An American poet, died August 22, 1909. He was the son of Senator Henry Cabot Lodge, and was born in Boston in 1873. He graduated from Harvard

University in 1895, and studied at the University of Paris. He served through the Spanish-American War, with the rank of ensign. Following the close of the war he became private secretary to his father, and held this position until his death. Mr. Lodge was a frequent contributor of verse to the magazines. His published works include *Song of the Wave* (1898); *Poems* (1902); *Cain* (a drama, 1904), and *The Great Adventure* (1905). He was regarded by competent critics as a writer of unusual gifts, distinctly in the first rank of the younger American poets.

LOEB, LOUIS. An American artist, died July 12, 1909. He was born in Cleveland, Ohio, in 1866. At the age of 19 he removed to New York City, where he became well-known as an illustrator. He went to Paris and completed his art studies under Gérôme. Returning to the United States he executed many important commissions. He was elected an associate of the National Academy of Design in 1901, and an Academician in 1906. He won several important prizes, and received medals at the Buffalo and St. Louis expositions.

LOGAN, OLIVE. An American writer, died on April 28, 1909. She was born in Elmira, N. Y., in 1839. After a successful period on the stage she graduated from an English college for women. She lived for a time in Paris, contributing to English and French publications. In 1864 she again went on the stage in a play of her own, *Eveleen*, in which she starred in the United States. She achieved great success in 1865 in a play called *Sam*. Shortly after the completion of her college course she married Edward A. De Lille. She secured a divorce from him in 1865, and shortly afterwards married W. W. Sikes. Following this she left the stage and became a popular lecturer on woman's rights. She wrote and adapted several successful plays, and contributed to many periodicals. In 1883 her husband died and she married her secretary, James O'Neil. He proved to be worthless, and Olive Logan gradually sank from sight until, in 1906, she appeared in a police court in New York asking for relief. She was found by friends and placed in comfortable surroundings, but she became insane and died in an asylum in England. Among her friends were most of the leading writers and public men of her time. Among her works are *Photographs of London Life*, *Château Froissac*, and *Get Thee Behind Me, Satan*.

LOMBROSO, CESARE. An Italian criminologist, died October 19, 1909. He was born in Verona, in 1836, and was educated at the University of Turin. He studied literature, linguistics and archæology, but changed his plans and for eight years was a military surgeon. In 1862 he was appointed professor of the diseases of the mind at the University of Pavia, and later took charge of the insane asylum at Pesaro. He eventually became professor of medical law and psychiatry at the University of Turin. The appearance of his great book, *The Criminal*, in 1875, marked the beginning of the science of criminal anthropology, and Lombroso became the head of the Italian school. As against Nordau's theory of degeneration, he held that the criminal was insane through abnormalities of development or arrested development. He maintained that the born criminal is distinguished from other men by

physical stigmata which can be easily determined, differentiated from the normal anatomically as well as psychologically. Chief among his stigmata are excessive asymmetry of the skull, small cranial capacity, abnormal features, and slight growth of the beard relative to the hair of the head. For boldly stating his position thirty years ago he was roundly abused by the people of his country. In 1879, when Passanante attempted the life of King Humbert in Naples, the authorities wished the would-be assassin punished, but Lombroso advised sending him to an asylum. Passanante was sent to a dungeon and 13 years later a commission of alienists pronounced him insane. The studies which led him to his conclusion regarding criminals date back to 1866, when a case came under his observation in which a soldier in anger killed an officer and was executed. Lombroso made the autopsy and was surprised to find an occipital dent in the skull. He conceived at once that the soldier's crime was due to an incomplete development of the brain, due to the peculiarity of the skull. He continued his studies along this line and later showed the world how in this way crime originates and criminology is propagated. He found a remedy in careful education and development. In the past few years there has been something of a reaction against Lombroso's theories of criminology. He was a copious writer, and English translations of his works, *The Man of Genius* and *The Female Offender*, were published in 1891 and 1895 respectively. Both caused great discussion. In addition to his works on criminology he wrote two books on pellagra, (q. v.) a disease which is now attracting some attention in the United States, and has long been a scourge of Italy. Among his other books in addition to those mentioned above are the following: *Ricerche sul cretinismo in Lombardia* (1859); *Genio e follia* (1864); *Sulla microcefalia e sul cretinismo con applicazione alla medicina legale* (1873); *L'amore nel suicidio e nel delitto* (1881); *Sulla medicina legale del cadavere* (2d ed., 1890); *Le più recenti scoperte ed applicazioni della psichiatria ed antropologia criminale* (1894); *L'antisemitismo e le scienze moderne* (1894); *Genio e degenerazione* (1897). His last book, translated into English as *After Death, What?* was published in 1909.

LORIMER, WILLIAM. An American public official, United States Senator from Illinois. He was born in Manchester, England, in 1861. His parents removed to the United States in 1866, and lived for a time in Detroit, moving to Chicago in 1870. When the son was 12 years old the father died and the former was left, with his brother, to support their mother and three sisters. He sold newspapers, and did other like work until he obtained a position in the stockyards. He later became a horse car conductor and in this position first showed his talent for handling men. He organized a street railway employees' association and took an active part in politics. He became prominent in ward politics and went into the real estate business. In 1894 he was nominated and elected to Congress and again in 1896 and 1898. In the meantime he had become strong in local politics of Chicago and by 1900 he was able to dictate nominations for city officers. In 1900 he failed of reelection to Congress, but succeeded in electing his candidate for governor of the State. His candidates for State offices met

with defeat in 1904 and in the meantime he had been elected again to Congress, and shortly became even more powerful in local politics. He strongly opposed Governor Deneen, but his candidate was defeated at the polls. In 1908 he formed a coalition against the renomination of Governor Deneen, but was again defeated. When Senator Hopkins appeared as a candidate for reelection to the Senate, strong opposition developed, resulting in a deadlock, which lasted from January till May. Senator Lorimer had hitherto been friendly to Senator Hopkins, but now appeared in opposition. Gradually other candidates against Hopkins were eliminated until Lorimer was able to make the nomination himself. See ILLINOIS.

LOS ANGELES, CALIFORNIA. See ELECTIONAL REFORM.

LOUISIANA. One of the Gulf States of the United States. Its total area is 48,506 square miles, of which 3097 square miles are water. The population, according to a Federal estimate made in 1909, was in that year 1,618,358.

MINERAL PRODUCTION. The most valuable of the mineral products of the State is petroleum, in which Louisiana ranks eighth, having in 1908 surpassed Indiana, which previous to that year had held this relative position. There were produced in 1908 in the State 6,835,130 barrels, as compared with 5,000,221 barrels in 1907. The value of the product in 1908 was \$4,131,173, as compared with a value of \$4,063,033 in 1907. Work in the Caddo field was hampered in May and June by high water. In June, 1908, the district was extended to Lewis, about four miles north of Oil City, by the bringing in of a large gas well whose yield was reckoned at 15,000,000 feet per day. On December 15, 1908, the Secretary of the Interior withdrew from entry, by the President's order, all the public lands in the neighborhood of the Caddo field, embracing about 6500 acres. This action was taken pending a careful geologic investigation by the United States Geological Survey, made in cooperation with the State with a view to preventing a waste of natural gas which had been estimated at 75,000,000 cubic feet a day. An investigation of the oil field is in progress and will be available in the spring of 1910. In Southern Louisiana the production was maintained by steady developments at Welsh and Jennings. The State is a large producer of sulphur, in which Louisiana dominates the world's sulphur trade. In the production of salt Louisiana ranks fifth. The production in 1908 was 947,129 barrels valued at \$249,733, as compared with 1,157,621 barrels in 1907 valued at \$226,892. The salt mined in Louisiana comes from the Weeks and Avery Islands, so called, in Iberia Parish. The clay products in the State in 1908 were valued at \$629,924, compared with a value of \$928,570 in 1907. The State is also a producer of mineral water. The value of the mineral products of the State for 1908 was \$12,113,009, as compared with a value of the product for 1907 of \$10,876,719.

There was considerable decline in southern Louisiana in the output of petroleum in 1909. This was offset by an increase in the production in the Caddo field under the stimulus due to the starting of work on the refinery of the Standard Oil Company at Baton Rouge and on

a pipe line connecting it with the Caddo field. The significant feature in this drilling has been the success of persistent efforts to discover oil at lower levels, particularly north and northwest of the former productive region.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to the United States Department of Agriculture, were as follows: Corn, 51,198,000 bushels, valued at \$35,327,000 from 2,228,000 acres; oats, 640,000 bushels, valued at \$397,000 from 32,000 acres; rice, 12,675,000 bushels, valued at \$10,013,000 from 375,000 acres; potatoes, 1,200,000 bushels, valued at \$1,092,000 from 16,000 acres; hay, 34,000 tons, valued at \$364,000 from 23,000 acres; tobacco, 220,000 pounds, valued at \$81,400 from 400 acres. Louisiana occupies first place in the production of rice, surpassing in 1908 Texas, which previous to that time held first place. The crop of 1909 was considerably larger than that of 1908, which was 11,550,000 bushels. The acreage increased from 350,000 to 375,000. The farm animals in the State remained practically constant since 1900 except for an increase in the number of mules and a decrease in the number of swine. The estimated wool clip in 1909 was 475,240 pounds. The cotton crop of 1909-10 was estimated at 280,000 bales. The production of cane sugar in 1909 was estimated at 325,000 tons.

FISHERIES. The value of the product of the fisheries of the State at the close of the year ending December 31, 1908, was \$1,568,800. Of the fish taken, oysters were most important in point of value. Of these 3,073,200 bushels, valued at \$719,700 were taken for market purposes and 550,600 bushels valued at \$43,100. Next in point of value was shrimp, of which 8,581,500 pounds were taken with a value of \$212,500; catfish, 4,404,700 pounds, valued at \$142,800; trout, 1,103,100 valued at \$81,600; channel bass, 578,000, valued at \$33,500; croaker, 369,100 pounds, valued at \$27,500; crabs, 322,200 pounds, valued at \$28,900; terrapin, 52,400 pounds, valued at \$21,000. The number of independent fishermen engaged in the fisheries of the State was 2970. The number of fishermen employed was 2847. 4913 vessels and boats were engaged in fishing, valued at \$699,000.

EDUCATION. The latest statistics available for education in Louisiana are those of 1907. The report of the Superintendent of Education showed that in that year there was a total school population of 496,801. There were enrolled in the public schools of the State 243,731, of whom 163,503 were white, and 80,128 colored. The average attendance among the white children was 116,527, and among the colored children, 57,097. The male teachers employed numbered 967, the female, 3845. There were 436 colored male teachers and 732 colored female teachers. The average salary per month of white male teachers was \$74.50 and of female white teachers \$49.

FINANCE. The biennial report of the State Treasurer for 1906-7, which is the latest available, shows the total receipts in 1907 to be \$6,628,502, and the expenditures, \$5,209,179, leaving a balance in the treasury on January 1, 1908, of \$1,419,322. The chief revenues were from the general fund, the current school fund, the interest tax fund, from the free-school tax fund, and from the penitentiary fund. The

chief expenditures were on account of the general fund, current school fund, interest tax fund, and penitentiary fund.

OFFICERS: Governor, J. Y. Sanders; Lieutenant-Governor, P. M. Lambemont; Secretary of State, J. T. Michel; Auditor, Paul Capdeville; Treasurer, O. B. Steele; Attorney-General, Walter Guion; Superintendent of Education, T. H. Harris—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, J. A. Breaux; Associate Justices, A. D. Land, F. T. Nicholls, Frank A. Monroe, O. O. Provosty; Clerk, Paul E. Mortimer—all Democrats.

The State Legislature of 1909 was composed of 41 Democrats in the Senate and 116 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

LOVETT, ROBERT SCOTT. An American lawyer and railroad official, appointed in September, 1909, to succeed Edward H. Harriman (q. v.), as chairman of the Board of Directors of the affiliated lines, commonly known as the Harriman System. He was born at San Jacinto, Texas, in 1860, and was educated in the public schools and in the Houston High School. In his youth he worked on a farm, and when in 1874 a railroad was put through the town of Shepard, he removed there, taking a position in the general store at a salary of \$10 a month and board. His interest in railroads brought him into the employ of the Houston East and West Texas Railroad as station agent at Shepard, and later he removed to Houston as clerk in the freight office of that railroad. While serving in this position he studied law at night and was eventually admitted to the law firm of Charles Stewart, then a representative in Congress. He was admitted to the bar in 1882. From 1884 to 1889 he was attorney for the Houston, East and West Texas Railway and from 1889 to 1891, assistant general attorney for the Texas and Pacific Railway Company. In 1891 he was made general attorney for that road. In 1904 he was made general attorney and counsel for all the Southern Pacific lines in Texas, and became a member of the firm of Baker, Botts, Baker & Lovett, which represented the Southern Pacific Railroad. Under the direction of Mr. Harriman he amalgamated the system and was elected president of the Houston East and West Texas Railroad. He was shortly afterward made general counsel for the Union Pacific Railway Co., and the Southern Pacific Co. and affiliated lines. In 1906 he came to New York as the general legal representative of Mr. Harriman's railroads.

LOWELL, ABBOTT LAWRENCE. An American educator, inaugurated in October, 1909, president of Harvard University. He was born in Boston in 1856, graduated from Harvard College in 1877, and from Harvard Law School in 1880. From 1880 to 1897 he practiced law in Boston. He was lecturer on government at Harvard from 1897 to 1899, and from 1900 to the time of his appointment as president he was professor of the science of government. President Lowell comes from a family which has long been distinguished in the industrial history of New England. One of his ancestors, Francis Cabot Lowell, was the principal agent in the introduction into the United States of the manufacture of cotton and for him the city of Lowell was named. From his son, John, who

died early in life, the city of Boston received the sum of \$250,000, from which are maintained annual courses of free public lectures on religion, science, literature and art. These lectures are known as the Lowell Institute lectures. James Russell Lowell was an uncle of President Lowell's. On his mother's side President Lowell is a grandson of Abbott Lawrence from whom the city of Lawrence, Mass., takes its name. Professor Lowell's studies have been directed chiefly toward the science of government. He published in 1888 a small volume of essays on government which attracted wide attention. This was followed in 1897 by a two-volume work entitled *Government and Parties of Continental Europe*, which has remained from that time the most scholarly and widely used treatise on the subject. His reputation was further added to in 1908 by the publication of another two-volume work, *The Government of England*, which is generally recognized as one of the notable books of the decade. Before his election to the presidency of Harvard Mr. Lowell had already proved himself a man of well tested administrative capacity. He has been sole trustee of the Lowell Institute since 1900 and has had a governing authority of that successful educational enterprise. Under his administration, its field has been widely extended. He was also for many years a member of the executive committee of the Massachusetts Institute of Technology. Although President Eliot's theories in regard to the administration and development of the University, it was generally believed that he regarded certain of these theories as being too widely established. Among these was the elective system, which he believes should, in some directions, be modified. The general ideas of his attitude in regard to educational theories were outlined in his inaugural address. He affirmed his belief that the reconstruction of the American college is, at the present time, urgent everywhere. The most important question to his mind is that of the undergraduate, who, in a large college, is likely to be crushed between the millstones of the professional and secondary schools. He lamented the lack of the old solidarity when the classes numbered only fifty or sixty. He pointed out the need of recasting the elective system and of better direction and control of undergraduate students. He proposed as a stimulation to higher scholarships a series of honorary examinations, which may be patterned somewhat after the Oxford examinations in literature, mathematics and science. He suggested also a new scheme for freshmen residents giving a closer affiliation of students with the younger instructors. President Lowell's inauguration was accompanied with impressive ceremonies in which officials of the State and eminent scholars from the universities of the United States and foreign countries took part.

LUMBER. See FORESTRY.

LURTON, HORACE HARMON. An American jurist, nominated on December 13, by President Taft, to be a fifth justice of the Supreme Court of the United States to fill the vacancy occasioned by the death of Rufus W. Peckham. He was born at Newport, Ky., in 1844, and graduated at Cumberland University in 1867. In the same year he was admitted to the bar. From 1875 to 1878 he was chancellor of the

6th judicial division, Tennessee, and from 1886 to 1893 he was justice of the Tennessee Supreme Court, from January to April, 1893, serving as chief justice. In the same year he was appointed judge of the United States Circuit Court for the 6th judicial circuit and served in this position until his appointment to the Supreme Court. He was professor of constitutional law and dean of the law department at Vanderbilt University. Judge Lurton was never very active in politics, but he was always considered to be a consistent Democrat. President Taft served with Judge Lurton on the 6th circuit and they became intimate friends at that time. There was considerable discussion at the time of the suggestion of Judge Lurton as Supreme Court justice on the point of his age, but no serious opposition to his appointment developed.

LUTHERAN CHURCH. A religious denomination which includes the largest body of Protestants in the world and is the mother church of the Protestant faith. The church is found chiefly in Sweden, Germany, Norway, Denmark, Finland, Eastern Russia, part of Austria-Hungary, Rumania, France, England, Australia and North and South America, but churches of the denomination are scattered throughout the world. The church holds to the "pure Word of God" and the two Sacraments of Christ. It is conservative historically as compared with the more radical Protestant bodies. The church is carried on under Congregational, Presbyterian and Episcopal forms and church government is not essential. The first Lutheran minister came to North America in 1619, and there were Dutch Lutherans in Manhattan in 1623. Heinrich Melchior Muhlenberg was the great organizer of the church in the United States. He is known as the Patriarch of the Lutheran Church in America. He arrived in 1742 and founded the ministerium of Pennsylvania, the Mother Lutheran Synod in this country, in 1748. It was a general body. An attempt was made to combine the various Lutheran synods by the organization of a General Synod in 1820. The church received great increase in its numbers about the middle of the nineteenth century, when many Lutherans came from Scandinavia and Germany and filled up the territories of the Northwest and the West. The General Council, which is prevailingly English, but teaches the Gospel in German, Swedish, and other languages, was founded in 1867. The Synodical Conference, prevailingly German, was founded in 1871. The United Synod South was founded in 1886. The four general bodies of Lutherans embrace two-thirds of the Lutherans in the United States. The chief independent synods are the United Norwegian Synod, the Joint Synod of Ohio, and the German Iowa Synod. The total number of Lutherans in America in 1909 was 2,100,000 embraced in 67 synods. There were about 8300 ministers and 13,400 congregations. The church supports 114 educational institutions, having property valued at about \$8,300,000 and \$2,600,000 in endowments. The Lutherans maintain about 200 benevolent institutions, with property and endowment valued at about \$7,200,000. There are ten mission boards which conduct foreign missions in India, Japan, Liberia, Africa, China, Madagascar, Persia, Alaska, Cuba, Porto Rico and South America. It is estimated that there are about 76,000,000 Lutherans in the world. Sta-

tistics relating to the various divisions in the United States are as follows:

General Council, 471,563 communicants, 1565 ministers, 2393 congregations, 303,043 Sunday school scholars; benevolent offerings, \$492,420; value of church property, \$23,288,909. The biennial convention meets at Lancaster, Pa., beginning September 14, 1911.

General Synod. Communicants, 284,808; ministers, 1320; congregations, 1346; Sunday school scholars, 236,952; value of church property, \$18,344,453. The biennial convention meets at Washington, D. C., June 7, 1911.

Synodical Conference (German): Communicants, 735,866; ministers, 2620; congregations, 3278; Sunday school scholars, 217,736; benevolent offerings, \$614,639. The next convention meets at Seward, Neb., in May, 1910.

United Synod of the South: Communicants, 493,774; ministers, 240; congregations, 451; benevolent offerings, \$56,914; value of church property, \$1,714,140; Sunday school scholars, 32,872. The next convention meets at Winchester, Va., September 6, 1910.

Independent Synods: Communicants, 657,494; ministers, 2004; congregations, 5510; Sunday school scholars, 281,267; benevolent offerings, \$728,736.

Statistics prepared by the United States Census Bureau giving the figures from the census of 1890 to 1906 show that the Lutheran bodies have increased in number from the former date from 8595 to 12,703, a gain of 4108 or 47.8 per cent. Each of the principal bodies shows a considerable gain in the number of organizations. The largest numerical increase in any single body is that of the Evangelical Lutheran Synodical Conference of America, which rose in number from 1934 in 1890 to 3301 in 1906, a gain of 70.7 per cent.

The most important events in the Lutheran Church during 1909 were the publication almost simultaneously of three historical works dealing with the "Confessions of the Lutheran Church"; the Fortieth Anniversary at Harrisburg of the founding of the various Mission Boards of the General Synod; closer coöperation of the Germans in the General Council and the consolidation of the various German papers into one official church organ; the organization of the Kropp Commission, charged with the securing of theological students from Kropp Seminary in Germany and the direction of their preparation as missionaries to Germans in America. The United Norwegians and other Norwegian Lutheran bodies agreed to publish an English hymnal for use in their churches. The General Council authorized the elimination of all variations from "The Common Service" now in use among English-speaking Lutherans.

LUTHER LEAGUE OF AMERICA. A denominational religious organization, connected with the Lutheran Church, founded in Pittsburgh, Pa., in 1895. Its basis is the unaltered Augsburg Confession, and it receives into its membership any society of whatever name connected with a Lutheran organization or Lutheran institution of learning. Its membership in 1909 was over 100,000 in twenty-five States, fourteen of which have permanent organizations. The official organ of the League is the *Luther League Review*, published in New York City and edited by the chairman of the National Executive Committee and first vice-president. The next national convention will

be held in Pittsburg in October, 1910. The officers in 1909 were: President, William C. Stoever; General Secretary, Rev. Luther M. Kuhns; Treasurer, C. T. A. Anderson; chairman of the National Executive Committee, E. F. Eilert. There are organizations of the League in Japan, India, Canada, Porto Rico and the United States.

LUXEMBURG. An independent neutral grand-duchy of western Europe. Area, 998 square miles; population in 1900, 236,543; 1907, 250,911, nearly all Roman Catholics. Capital, Luxemburg, with 20,682 inhabitants. The principality is rich in iron ore; mineral output (1907), 7,492,870 metric tons, valued at 21,997,404 francs. Luxemburg is included for customs purposes in the German Zollverein. Length of railways (1907), 340 miles; telegraph lines, 680 (wires, 1410); telephone lines, 1030 (wires, 2990); post-offices, 116. The revenue and expenditure were in 1906, 13,120,770 and 14,674,730 francs respectively; in 1907, 17,467,861 and 18,055,659; in 1908, 17,433,529 and 17,407,927. The budget for 1909 estimated the revenue at 17,819,619, expenditure 18,341,614 francs. Debt (1909), 12,000,000 francs; annuities, 493,150. The savings-banks had (December 31, 1906), 57,491 depositors, with deposits to the sum of 48,562,140 francs. Reigning grand-duke, Wilhelm, born April 22, 1852; married, June 21, 1893, to Maria Anna of Braganza (Regent since November 18, 1908). He succeeded his father November 19, 1905. Heiress-apparent (bill passed July 6, 1907, by the Chamber of Deputies), Princess Marie, born June 14, 1894. There is a chamber of deputies of 45 members, elected directly by the cantons.

MACAO. A city on the island of Macao, at the mouth of the Canton River, China, constituting, with the two small adjacent islands of Colôane and Taipa, a Portuguese dependency. Area, four square miles; population (census of December 31, 1899), 63,991 (12,894 in Colôane and Taipa). The whites numbered 3919 (3780 Portuguese). The city is divided into two wards, each having its own administration and the one inhabited by Chinese and the other by non-Chinese. The trade, which is mostly transit, amounted in 1907 to 13,636,431 dollars (Mexican) for imports and 14,657,136 dollars for exports. In that year, besides 4218 vessels in the coasting trade, the shipping entered aggregated 2259 vessels of 963,442 tons. For the year 1908-9, the estimated revenue and expenditure were 700,404 milreis and 678,040 milreis respectively.

MACARTHUR, JAMES. An American litterateur of Scotch birth, died February 11, 1909. He was born in Glasgow, Scotland, in 1866, and was educated in that city. In 1888 he came to the United States. From 1894 to 1900 he was joint editor of the *Bookman*, and also reader and general literary adviser to Dodd, Mead & Co. In 1901 he became literary adviser to Harper & Brothers, and continued in that capacity until his death. He dramatized *The Bonnie Briar Bush*, and *Pilgrim's Progress*, and was joint author of *The Masque of the White Rose*, *Kronstadt*, *Captain Debonnaire* and *The Spoilers*. Mr. MacArthur contributed prose and verse to many magazines.

McCARREN, PATRICK HENRY. An American politician, died October 22, 1909. He was

born in 1849 in East Cambridge, Mass. His parents moved in 1851 to Williamsburg, a part of Brooklyn, N. Y. The boy was apprenticed to a cooper after having attended common schools, and he early engaged in activities of local politics. Before his twenty-first year he had been defeated for the leadership of his district. In 1881 he had become so well known locally that he was nominated and elected Assemblyman from the Fourteenth and Fifteenth wards. His leadership in the Fourteenth ward was assured and his influence spread rapidly. He was reelected to the Assembly, and in 1885 was beaten for the Senate. In 1889, however, he was successful and was elected to the Senate. He continuously served in the State Senate until the time of his death. In 1893 he became virtual leader of the Brooklyn Democracy. Shortly after, he broke with Charles F. Murphy, the leader of Tammany Hall, and from that time a fight was waged between them for the control of the Brooklyn Democracy. In 1904, as a result of Murphy's attempt to overthrow McCarren's leadership one of the bitterest struggles in the history of New York politics took place. The breach further widened in 1906 when McCarren opposed the nomination of Hearst for governor by Tammany Hall. Murphy and Conners, the State Chairman, formed a combination by which McCarren's delegates were forced out and supplanted by Murphy's selections. A similar combination in 1907 kept McCarren and his delegates out of the Democratic National Convention at Denver. This was done at the expressed wish of W. J. Bryan, whom McCarren steadily opposed. McCarren was a lawyer, but had little time for practice of his profession. He was identified with certain corporations, notably the Standard Oil Company and the American Sugar Company. He was a man of keen intellect and was an aggressive fighter. He was one of the strongest opponents in the Senate of Governor Hughes's measures to prevent betting at the race tracks and in his attempts at reform generally.

McCLOSKEY, WILLIAM GEORGE. An American Roman Catholic bishop, died September 17, 1909. He was born in 1823 at Brooklyn, N. Y., and was educated at St. Mary's College, Emmetsburg, Md. He was ordained as priest in 1852, after which he spent a year in mission work in New York. He was then appointed to the chair of moral theology and sacred scripture in St. Mary's College. This position he held from 1857 to 1859. He was the first president of the American College in Rome, holding this office from 1859 to 1868. In the latter year he was appointed Bishop of Louisville. He was one of the two oldest bishops in the Roman Catholic Church, both in years and in point of continuous service.

McCLUNG, LEE. An American public official, since September 23, 1909, Treasurer of the United States. He was born in Knoxville, Tenn., in 1870, and graduated from Yale University in 1892. After traveling abroad he engaged in railroad work, in which he continued until 1904, when he was appointed treasurer of Yale University. Mr. McClung was one of the best known football players in the country during his college course.

McCLURE, ALEXANDER KELLY. An American journalist and politician, died June 6, 1909. He was born in Sherman's Valley, Pa., in 1828.

His early life was passed on his father's farm, but after a short apprenticeship to a tanner, he became, in 1846, editor and publisher of a paper at Mifflin, Pa. He continued in newspaper work, varied by political activity until 1864. In 1856 he was admitted to the State bar. He was a member of the State Legislature 1857-8, and 1864, and from 1868 to 1873 practiced law in Philadelphia. In the latter year he established the Philadelphia *Times* of which he was editor until 1900. Mr. McClure was a prominent figure in State and National politics. He was a member of the convention which nominated Lincoln in 1860, and later became one of Lincoln's intimate friends and admirers. He took an active part in many national conventions, notably in 1872, when Horace Greeley was nominated for the Presidency.

MACCONNELL, CHARLES JENKINS. A rear-admiral (retired) of the United States navy, died February 17, 1909. He was born in Falls township, Pa., in 1837. His early years were spent as a mechanical and civil engineer, and builder. In 1861 he enlisted in the National Guard of New Jersey, but after a few months of service was appointed a third assistant engineer in the naval service. He served under Admiral Farragut and was present at the capture of New Orleans. In 1866 he was made first assistant engineer, and in 1896 commander. He was advanced to captain in 1898 and was promoted two numbers in the list of chief engineers, for conspicuous services. During the Spanish-American War he was fleet engineer of the North Atlantic Squadron. He returned on account of disabilities in 1899, and was appointed to the rank of rear-admiral, retired in 1906.

McCOOK, EDWARD MOODY. An American soldier and public official, died September 9, 1909. He was born in Steubenville, Ohio, in 1833, and was educated in the public schools. In 1860 he was elected a member of the Kansas Legislature. He entered the Union army in 1861 as second lieutenant in the First United States Cavalry, and served throughout the war, rising to the rank of major-general of volunteers. He was four times brevetted for gallant services. He resigned from the regular army in 1866, and in the same year was appointed Minister to Hawaii. From 1869 to 1875 he was Governor of the Territory of Colorado.

McGILL UNIVERSITY. An institution of higher learning at Montreal, Canada, founded in 1821. In 1908-9 the number of students was 1900, and the faculty numbered 260. In the library are 152,000 volumes. There were received in gifts and endowments during the year land valued at \$142,500; for the purpose of erecting a new medical building, \$450,000; for salaries, \$50,000; for building purposes, \$100,000; and for miscellaneous purposes, \$45,000. Harold A. Wilson was appointed Macdonald professor of physics to take the place of Professor John Cox, retired. Hon. A. G. Cross was appointed professor of commercial law to take the place of Eugene Lafleur, resigned. Louis A. Herdt was appointed professor of electrical engineering to take the place of R. B. Owens, resigned. The new engineering building, erected to take the place of the one destroyed by fire in April, 1907, was formally opened in the spring of 1909. The new medical building, commenced in September, 1908, was

partly finished during the year, and will be occupied at the beginning of 1910. The principal is W. Peterson.

McKIM, CHARLES FOLLEN. An American architect, died September 14, 1909. He was born in Chester county, Pa., in 1847, and graduated from the Lawrence Scientific School in 1867. From 1867 to 1870 he studied at the École des Beaux-Arts in Paris. He returned to the United States in 1872 and began the practice of his profession as architect. In 1877 he formed a partnership with William R. Mead, and two years later Stanford White was made the third member of the firm, which, under the name McKim, Mead & White, designed some of the most notable public and private buildings in the United States. Among these were buildings for Columbia University, Rhode Island State Capitol, the Brooklyn Institute of Arts and Sciences, the Walker Art Building at Bowdoin College, the Music Hall and Public Library in Boston, and the Madison Square Garden in New York City.

McLAURIN, ANSELM JOSEPH. An American public official, United States Senator from Mississippi, died December 22, 1909. He was born in 1848 at Brandon, Miss., and when less than a year old was taken by his parents to Smith county in the same State, where he lived on the farm and occasionally attended school. At the age of sixteen he joined the Confederate Army and served throughout the Civil War as a private. Following the war he attended Summerville Institute for two years. He began the practice of law in 1868, and in 1871 was elected district attorney. He was elected to the legislature in 1879, and in 1895 became Governor of Mississippi. In 1900, a year after his term of Governor had expired, he was elected to the United States Senate and began his services on March 4, 1901. He was reelected for another term of six years in 1907. Senator McLaurin was one of the most industrious members of the Senate. He was a member of eleven committees and gave a great deal of attention to all of them.

MacLAURIN, RICHARD C. An American educator, inaugurated in 1909 president of the Massachusetts Institute of Technology. He was born near Edinburgh, Scotland, in 1870, and was educated in New Zealand and England. For ten years he served as professor in the University at Wellington, New Zealand. In February, 1908, he was elected professor of mathematical physics at Columbia University as successor to Dr. R. S. Woodward. Dr. MacLaurin has traveled extensively and has made a careful study of educational systems in the United States and in Europe. In addition to his appointments in mathematics and physics, he is a profound student in the profession of the law, and is the author of a legal work entitled *The Realty*. In 1908 he was chosen to the presidency of the Massachusetts Institute of Technology to succeed Dr. R. S. Pritchett.

McLOUTH, LEWIS. An American educator, died March 15, 1909. He was born in 1835 at Rochester, N. Y., and graduated in 1858 from the University of Michigan. He was for many years a member of the faculty of the Michigan State Agricultural College, and was among the first to urge the establishment of United States agricultural stations. He was almost among the earliest scientific teachers to introduce

laboratory methods in the study of chemistry and physics. From 1887 to 1897 he was president of the South Dakota Agricultural College.

McQUAID, BERNARD JOHN. A Roman Catholic bishop, died January, 1909. He was born in New York City in 1823. He studied at Chambly College, near Montreal, and later went to St. John's College, Fordham, where he remained as tutor for three years. In 1848 he was ordained as a priest. His first parish was at Madison, N. J., and he at once turned his attention to the building of churches and parochial schools in the surrounding towns. In 1853 he became rector of the Newark Cathedral. Here he founded, and for three years was president of, Seton Hall College and Seminary. He founded also other institutions of learning in the vicinity. In 1868 he was consecrated as bishop, and installed in the diocese of Rochester. He established here, in 1893, St. Bernard's Seminary, and in 1905 St. Anne's Home for the Aged. On August 20, 1908, Bishop McQuaid celebrated his diamond jubilee. His aim throughout his entire life was the establishment of more parochial schools for his people. He was one of the two oldest bishops of the Roman Catholic Church in America.

McSWEENEY, MILES BENJAMIN. An American public official, from 1896 to 1902, Governor of South Carolina, died September 29, 1909. He was born in Charleston, S. C., in 1853, and was left an orphan when but four years of age. He began work at the age of six, and when still a youth established the *Hampton Guardian*, which became one of the most successful county papers of the State. He was delegated to the National Democratic Convention in 1888, 1896 and 1900. In 1896 he was elected Lieutenant-Governor of the State, and succeeded as Governor on the death of Governor W. H. Ellerbe. He was elected Governor in 1900-2.

MacVEIGH, FRANKLIN. An American public official, Secretary of the Treasury in President Taft's cabinet. He was born on a farm in Chester county, Pennsylvania, and graduated from Yale College in 1862. He studied law at the Columbia Law School and graduated in 1864. Because of ill-health he abandoned the practice of law and established a wholesale grocery business in Chicago, of which he remained the head until President Taft invited him to enter his Cabinet. In 1874 he was president of the Citizens' Association which inaugurated many important municipal reforms. In 1894 he was nominated by the Democrats for United States Senator, but was defeated in the legislature. He was president of the Bureau of Charities and Municipal Art League, Chicago, and is a member of the executive committee of the National Civic Federation, and vice-president of the American Civic Federation. See UNITED STATES, paragraph Cabinet.

MADAGASCAR. An island, one of the largest in the world, belonging to France, off the southeastern coast of Africa, separated from the mainland by the Mozambique Channel. The capital is Antananarivo.

AREA AND POPULATION. The estimated area is 228,000 square miles. The population, January 1, 1907, numbered 2,700,661 (1,312,810 males, 1,393,851 females), of whom 2,690,381 were natives (the Hova is the dominant tribe), 7606 French, 2088 other Europeans, 3602 Asiatics,

and 1978 Africans. The movement of the civil European and mixed population in 1907 was as follows: Marriages, 74; births, 538; deaths, 437. Antananarivo had (1906) 72,000 inhabitants; Fianarantsoa, 27,000; Tamatave, 7026; Majunga, 7910.

EDUCATION, ETC. Education is nominally compulsory. There were in 1906 32 primary and infant schools for French and other European children, with 1209 pupils. For natives there were 645 primary schools, with 52,059 pupils; one administrative school (124 pupils), 27 agricultural schools (1464 pupils), and 16 normal schools, with 58 teachers and 1008 students. The French language is obligatory in all schools, including mission schools. A large proportion of the Hova and other tribes in the central districts have been Christianized; about 450,000 are Protestants and 50,000 Roman Catholics. The outlying tribes are still mostly heathen.

PRODUCTION. The area under cultivation by Europeans in 1906 was 339,279 hectares. In the lowlands, rice, manioc, arrowroot, sugarcane, tobacco, hemp, cotton, vanilla, tea, and coffee are successfully grown. Excepting gold, the principal article of export is rubber, which is indigenous, as is also gum-copal. There is a wealth of timber, and gums, resins, and medicinal plants abound. Sericulture is encouraged, and silk and cotton weaving is carried on. There were in the island in 1906, 2,860,384 cattle, 479,116 swine, 264,083 sheep, 63,367 goats, and 1950 horses, asses, and mules.

Mining concessions to the number of 390 (385 for gold, 5 for iron), covering 223,469 hectares, were in operation in 1906. The gold production for the decade was: 1898, 125,378 grams; 1899, 401,423; 1900, 1,114,000; 1901, 1,045,000; 1902, 1,303,000; 1903, 1,910,000; 1904, 2,460,000; 1905, 2,291,654; 1906, 2,255,108; 1907, 2,660,689. Gold reefs have been discovered in various parts of the island; while iron, copper, lead, silver, zinc, antimony, manganese, nickel, sulphur, graphite, and lignite are present in varying quantities.

COMMERCE. The total imports in 1907 amounted to 25,323,258 francs, against 36,527,622 in 1906; the exports, to 27,270,124, against 28,188,819. The principal articles of import in 1907 were as follows: Textiles, 10,146,000 francs; liquors, 3,306,000; metal wares, 2,596,000; coal, stone, etc., 1,077,000; flour, 578,000; paper, 411,000; various, 7,208,000; total, 25,323,000 (from France, to the sum of 21,835,102 francs; French colonies, 938,287; Great Britain, 484,827; British colonies, 637,100; Germany, 388,435). The principal exports were: Gold, 7,982,000 francs; rubber, 5,243,000; hides and skins, 5,610,000; raffia, 1,611,000; cattle, 1,176,000; vanilla 997,000; various, 4,651,000; total, 27,270,000 (18,759,833 francs to France, 818,502 to French colonies, 4,973,599 to Germany, 1,165,316 to Great Britain, and 741,006 to British colonies).

COMMUNICATIONS. A railway from Brickaville, on the coast, to Antananarivo is in process of construction, 166 miles of which were completed and in operation in 1909. Tamatave is connected by a railway of about seven miles with Ivondra, whence a canal completes the route to Brickaville. An automobile service between Antananarivo and Antsirabe (63 miles) was started in March, 1909. A French company controls transportation over the waterways

near the coast, and between the railhead and the capital the government provides automobiles and rickshaws for mails and passengers, while merchandise is carried in handcarts. Besides the wagon roads from Tamatave to Antananarivo and thence to Majunga, and between some of the principal military posts, roads are almost unknown and passengers and goods are carried on the shoulders of bearers. There were in 1909, 3620 miles of telegraph lines and 130 of telephone. Cables connect with Mozambique and Mauritius. There is postal communication throughout the island. In 1907, 6971 vessels of 1,188,672 tons entered, and 6889 of 1,183,135 tons cleared at the ports.

FINANCE. The estimated local revenue and expenditure for 1908 balanced at 32,091,610 francs. The French government in 1909 expended on Madagascar (entirely for military purposes) 15,584,231 francs. The debt stood, January 1, 1907, at 101,390,013 francs. The troops in the island (including Diego-Suarez) consisted of (1908) 3723 Europeans and 8254 natives. The police and militia are provided for in the local budget.

The Comptoir National d'Escompte de Paris has agencies at Antananarivo, Tamatave, Diego-Suarez, Mananzary, Majunga, and Tulear. The Banque Grenard (private) draws on the Cr dit Lyonnais. The only legal coin is the silver five-franc piece, with its silver subdivisions as well as copper coins of 5 and 10 centimes.

GOVERNMENT. A governor-general, assisted by a consultative council, resides at the capital. Nineteen provinces are under civil, and five territories under military, administration. Natives are employed in subordinate positions in both civil and military government. The colony has no representation in the French Parliament, and no elective assembly.

Diego-Suarez (a French colony since 1885), the island of Nossi B  (area, 130 square miles) on the west coast, and the island of Sainte Marie (64 square miles) on the east coast, are administered by the Governor-General of Madagascar, who, in 1909, was M. Augagneur.

MAINE. One of the North Atlantic States of the United States. Its area is 33,400 square miles. The population in 1909, according to a Federal estimate made in that year, was 724,508.

MINERAL PRODUCTION. Maine ranks high among the States in the output and value of its stone products. In 1908 these products were valued at \$2,027,508. This value is entirely of the granite produced, although there is a small production also of limestone. The value of the product of 1907 was \$2,147,770, of which \$2,146,420 was the value of the granite produced. In this product Maine ranks second, being surpassed only by Vermont. The State takes high rank also in the production of slate. Its product in 1907 was valued at \$213,707, as compared with a value of the product of 1906 of \$236,606. Maine has long been conspicuous among the States in the production and value of its mineral waters. There were produced in 1908 1,182,322 gallons, valued at \$394,346, as compared with 1,161,832 gallons, valued at \$414,300 in 1907. The State ranks fifth among the States in the quantity and value of lime burned. In 1908 141,934 short tons valued at \$661,453 were produced, as compared with 159,494 tons valued at \$764,140 in 1907. Other important mineral products are clay products,

feldspar, and small quantities of copper, precious stones, sand and gravel. The value of the mineral products of the State in the year 1908 was \$4,044,678, as compared with a value of the product in 1907 of \$4,395,266.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 646,000 bushels, valued at \$517,000, from 17,000 acres; spring wheat, 230,000 bushels, valued at \$253,000, from 9000 acres; oats, 4,588,000 bushels, valued at \$2,661,000, from 124,000 acres; barley, 228,000 bushels, valued at \$176,000, from 6000 acres; buckwheat, 644,000 bushels, valued at \$451,000, from 23,000 acres; potatoes, 29,250,000 bushels, valued at \$13,748,000, from 130,000 acres; hay, 1,330,000 tons, valued at \$19,551,000, from 1,400,000 acres. The State in 1909 occupied third place in the production of potatoes, being surpassed only by New York and Michigan. In the yield per acre it far surpassed any other State, the record for 1909 being 225 bushels per acre, as against 120 bushels for New York, and 105 for Michigan. The acreage devoted to hay is much larger than that devoted to all other farm products. The hay crop of 1909 was slightly larger than that of 1908, while the acreage remained practically the same. The number of farm animals on January 1, 1910, was as follows: Horses, 119,000; dairy cows, 175,000; other cattle, 139,000; sheep, 254,000; swine, 62,000. All classes showed an increase over the numbers of 1900, and there was an especial increase in the number of horses. The wool clipped in 1909 was 1,281,600 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$3,256,580. Of the fish taken the most important in point of value was lobsters, of which 9,929,200 pounds, valued at \$1,269,450, were taken. Next in point of value was cod, of which 20,010,800 pounds, valued at \$438,880, were taken. Herring were taken to the amount of 92,985,200 pounds, valued at \$419,980; had-dock, 10,512,500 pounds, valued at \$243,310; clams, 506,100 bushels, valued at \$251,350; scallops, 172,900 gallons, valued at \$195,500; hake, 17,398,500 pounds, valued at \$167,640; pollock, 8,940,800 pounds, valued at \$75,490. Among other important fish taken were alewives, cusk, halibut, mackerel, salmon, shad, smelt, and swordfish. There were 5004 independent fishermen engaged in the fisheries of the State, with 1857 employees. The number of vessels employed was 576, which were valued at \$817,463.

EDUCATION. The total school enrollment in the State for 1909 was 146,810. The average attendance was 109,021. There were 439 male teachers employed in elementary schools and 270 in secondary schools. The female teachers employed in the elementary schools numbered 4804, and those in the secondary schools, 389. The average monthly salary of male teachers in elementary schools was \$42.19; in secondary schools, \$86.75. The average salary per week of female teachers in the elementary schools was \$7.93, and in secondary schools, \$12.13. The total school expenditure, exclusive of new buildings, text-books and repairs, was \$2,713,534.

CHARITIES AND CORRECTIONS. In May the new State Home for Feeble-Minded was opened

at the site in Cumberland county purchased in 1908. The State has remodeled the buildings situated on the farms and is now building a dormitory. The institution will combine the advantages of school and home, and the feeble-minded will be segregated here instead of as hitherto being supported by the State in the localities where they have residence. There were fifty inmates of the Home in July.

POLITICS AND GOVERNMENT. The legislature of 1906 passed many important measures. Many of these are indicated in the paragraph *Legislation*, below. The conservation of State resources was one of the most important subjects taken up in the session. An act was passed creating a commission to collect information relating to the water powers of the State. The total amount of water power now developed in Maine is estimated by the United States Geological Survey at 153 horse-power minimum, which is equivalent to a total of 252,600 horse-power minimum for the six high-water months. The total undeveloped water power minimum for the six high-water months is 530,300 horse-power, making a total of 782,900 horse-power. In addition to this, it is estimated by the same authorities, based upon government surveys, that 416,000 horse-power may be secured by additional storage, making a grand total of 1,198,900 horse-power. The government estimates the value of the water power at regular rates in the United States as \$33 per horse-power per annum. The value, therefore, of the horse-power of Maine, developed and undeveloped, is not far from \$36,000,000 per year. The present horse-power developed is valued at about \$8,000,000 per annum as a market product. What is left undeveloped is worth, in round numbers, \$17,000,000 per annum, and the amount to be added by increased storage equals about \$11,000,000 per year. Measures were passed directing that all plans for the development of water power by private enterprise shall be submitted in advance to the Water Storage Commission and the details and cost of all work done on water powers in Maine shall be reported to this Commission.

In the elections held on March 1, gains were made by the Republicans in eleven cities in the State. Republican mayors were elected in nine cities, a gain of two over 1908, and Republican city governments in eight. The Democratic losses were at Rockland, a Democratic stronghold, and at Bath, which is ordinarily Republican.

Early in May, 1909, a commission named by the government of the Dominion of Canada and the United States, met in Van Buren, for the purpose of adjusting differences growing out of interpretations of the treaty between the United States and England, negotiated in 1842 by Lord Ashburton and Daniel Webster, then Secretary of State, in so far as they pertained to the use of the St. John River for log-driving purposes. The committee held several sessions at Van Buren, Me., and at St. John, N. B. The main point at issue is whether booms strung into the river at Van Buren by American mills for the purpose of sorting and holding their logs constitute an obstruction to navigation under the terms of the Ashburton treaty. There is further involved in the dispute a question of whether the Chamberlain Lake dam at the foot of that lake where it empties into the Allegash

River, a tributary of the St. John, which diverts the waters of said lake to those of the Penobscot River, is a violation of the treaty. It is not expected that the commission will be able to make its final report until the latter part of 1910. See ELECTION REFORM.

OTHER EVENTS. Losses in Maine in 1909 from forest fires amounted to \$81,625, and 32,361 acres were burned over. Of this loss, \$40,180 with an acreage of 21,161 was in incorporated towns, and \$41,443, representing the destruction of timber of 21,100 acres, was in the so-called forestry districts of Aroostook, Penobscot, Washington, Somerset, and Hancock counties. The total loss by fires of \$10,000 and over in Maine in 1909 was \$1,623,000, as compared with \$2,814,000 in 1908. The heaviest fires were at Houlton, Rumford Falls, Skowhegan, Lewiston and Bangor. On October 28 the steamer *Hestia* of the Dominion Line went ashore on Grand Manan near Eastport, with a loss of 35 lives. On May 12 a severe and devastating flood swept over the valley of the St. John River with great loss of life, and on September 29 a flood of widespread destruction at Aroostook, Penobscot and along the St. John River submerged railroads, stopped traffic and caused great loss of property, as well as the loss of one life.

Work was begun late in the summer by the Union Waterpower Company of Lewiston on the construction of the greatest water storage system in Maine. This is to be built at the headwaters of the Androscoggin River, across the Magalloway stream. The dam is to be forty feet high and to hold back the waters of a lake to be created thereby, which will contain half as much water as the entire storage system of Lakes Umbagog, Richardson, Mooselookmegunticook and Rangeley.

On July 22 a stone tower was dedicated at Pemaquid Harbor, reproducing in form the flanker of the old fort William Henry, which was built on this spot in 1692, near the place where Pemaquid Fort stood in 1631, Fort Charles in 1677, and Fort Frederick in 1729. Fort William Henry was destroyed by the French and Indians, and when built in 1692 marked the frontier of British possession to the east upon the continent of America. The tower, which was dedicated on July 22, is to be used as a museum of the relics and records of early Pemaquid, and it encloses a stone which bears the inscription of 1607, claimed by many historians to mark the site of the landing of Weymouth's expedition. The tower was dedicated by the Governor of Maine and representatives of Maine and Massachusetts. On July 31 Calais celebrated its 100th anniversary; on August 18, Solon its 100th anniversary; on August 25, Steuben its 150th anniversary, and Whitefield its 100th anniversary. On August 27 there was celebrated at Paris Hill the 100th anniversary of the birth of Hannibal Hamlin, Governor of Maine, United States Senator, Vice-President of the United States when Abraham Lincoln was President, and later an Ambassador to the Court of Spain.

There were eight fatal hunting accidents in the woods of Maine in the season of 1909.

LEGISLATION. The legislature of Maine met January 6, 1909. An act was passed creating a commission to assist in the topographical survey of the State; to set about the creation of a forest reserve and to have charge of plans

of reforestation. Governor Fernald, who drafted this bill, is chairman ex-officio, the other members being Edward P. Ricker of Poland Spring, James M. McNulty of Bangor, and E. C. Jordan of Portland. The legislature enacted a law prohibiting the transmission of electricity generated from water powers in Maine across the borders of Maine without special charter therefor from the State. For the first time in the history of Maine the attendance of the Attorney-General's office was required in behalf of the State as attorney before all hearings in which franchises were asked by private interests from the State. A 58-hour law for women and children in all cotton mills and other factories, excepting sardine factories and corn shops, was enacted, the same to go into effect January 1, 1910. A State Board of Arbitration for labor disputes was created, and Samuel R. Haines of Pittsfield, Alden M. Flagg of Auburn and R. F. Dunton of Belfast were appointed members thereof. A new tax system was inaugurated, based upon the report of a tax commission appointed by the 73d legislature, the features of this new system being a collateral inheritance tax and an increased tax on public service corporations and on the so-called wild lands of Maine. A new code of military laws governing the National Guard of Maine was enacted. The referendum was invoked for the first time—in one instance upon a private and special law relating to the division of the old town of York, and in the other instance upon a law defining the term "intoxicating liquors" within the meaning of the statutes. These are to be voted upon under the terms of the referendum at the next general election. The legislature appropriated \$350,000 to rebuild the State House.

OFFICERS: Governor, Bert M. Fernald; Secretary of State, A. I. Brown; Treasurer, P. P. Gilmore; Adjutant-General, Elliot C. Dill; Auditor, Charles P. Hatch; Attorney-General, Warren C. Philbrook; Superintendent of Education, Payson Smith; Insurance Commissioner, Beecher Putnam; Commissioner of Agriculture, A. W. Gilman—all Republicans.

JUDICIARY. Supreme Judicial Court: Chief Justice, L. A. Emery; Associate Justices, L. C. Cornish, Albert M. Spear, W. P. Whitehouse, G. E. Bird, Albert R. Savage, A. W. King and Henry C. Peabody—all Republicans except Bird; Clerks, C. F. Sweet, C. W. Jones, L. Barton—all Republicans except Barton.

The State Legislature of 1909 was composed of 23 Republicans and 8 Democrats in the Senate, and 100 Republicans and 51 Democrats in the House. The State representatives in Congress will be found in the section *Congress of the article UNITED STATES.*

MAINE, UNIVERSITY OF. An institution of higher learning at Orono, Maine, founded in 1865. The attendance in 1908-9 was 851, with a faculty of 92. The books in the library number 39,205. Among the changes in the faculty were the appointments of R. P. Gray to succeed H. M. Estabrooke, deceased, as professor of English; G. W. Thompson to succeed J. W. Carr, deceased, as professor of German; and R. H. McKee to succeed A. B. Aubert, retired, as professor of chemistry. During the year a fully equipped department of domestic science was opened. The University is supported by the State. The president is G. E. Fellows, Ph. D., LL. D.

MALAY STATES, FEDERATED. Several states on the mainland of the Malay Peninsula, each administered under the advice of a British resident-general, who assists the native rulers and is himself under the supervision of the High Commissioner, who is also governor of the Straits Settlements.

AREA AND POPULATION. Their total area is estimated at 26,380 square miles; population (1901), 687,595 (312,486 Malays, 299,739 Chinese, 28,211 East Indians, 1422 Europeans and Americans, and 1522 Eurasians); 1906, 918,400; 1908, 978,000. The largest town in the states is Kuala Lumpur, in Selangor, with about 40,000 inhabitants. Area and population (1906) of the separate states are given as follows: Perak, 6580 square miles and 418,000 inhabitants; Selangor, 3200 and 283,619; Negri Sembilan, 2600 and 121,763; Pahang, 14,000 and 100,000. The states of Kelantan, Tringganu, Keda, Perlis, and adjacent islands have been, by the Anglo-Siamese treaty of March 10, 1909, ceded to the British government, Siam having transferred all its rights of suzerainty, protection, administration and control. These states extend across the Malay Peninsula, with an area of about 15,000 square miles and a population estimated at 450,000.

In 1907 the total number of schools in the four states of the Federation was 310, with a total enrollment of 19,432 pupils, and an average attendance of 16,071. Kuala Lumpur has a very complete institute for medical research.

PRODUCTION. All land belongs to the state, which rents to the individual. The soil is fertile, and there are vast areas of forest land available for plantation. The total area planted to rubber in 1907 was 135,787 acres; the total number of trees was given as close upon twenty millions. The output from the three rubber-producing states in 1907 was estimated at 1,984,285 pounds. The output for the first five months of 1909 shows an increase of 72½ per cent. over the same period in 1908, being estimated at 1,976,898 pounds, as follows: Selangor, 1,312,069 pounds; Negri Sembilan, 367,880; Perak, 296,949. Cocoanuts, rice, coffee, sugarcane, tapioca, pepper, and gambier are cultivated. Perak has irrigation works which water 70,000 acres of rice. The forests furnish valuable timber, gutta-percha, oils, resins, and fruits; the gross revenue of the Forest Department amounted in 1907 to 628,315 dollars (Straits Settlements dollar, which has a tentative value of \$0.5677585). The country is exceptionally rich in minerals. Seven-tenths of the world's supply of tin comes from the Federated Malay States. The output in 1907 was 813,636 piculs (1 picul=133½ lbs.). The output for the first nine months of 1909 shows a decrease as compared with the same period in the two years previous, being estimated at 35,487 tons, against 37,245 in 1908 and 36,101 in 1907. The output of gold in 1907 was 15,353 ounces. Lead, iron, copper, bismuth, mercury, arsenic, manganese, plumbago, silver, and zinc are found.

COMMERCE. The total imports and exports (exclusive of specie and bullion) for three successive years is given in Straits Settlements dollars as follows:

	1906	1907	1908
Imports	50,926,606	56,867,472	51,343,592
Exports	80,832,325	82,254,433	66,421,978

The chief articles of import are rice, petroleum, opium, and flour. The chief exports in 1907 were valued as follows: Tin and tin ore, 70,625,999 dollars; rubber, 3,892,405; copra, 452,270; gambier, 271,187; gutta-percha, 103,358.

In 1908, 3,165,600 pounds of cultivated rubber were exported. The rubber export for the first nine months of 1909 shows an increase of 90 per cent. over that of the same period in 1908; being 4,050,282 pounds against 2,127,489 in 1908 (first nine months). The tin export for the first nine months of 1909 (564,595 piculs) shows a decline of 34,156 piculs in comparison with the export for the same period in 1908. The export duty paid in 1909 (first nine months) was 4,903,948 dollars, against 5,139,653 in 1908.

COMMUNICATIONS. There are 589 miles of railway, all constructed from revenue, including the Johore State Railway (120½ miles), which was opened for traffic July 1, 1909, thus establishing through communication between Penang and Singapore (cost of construction of Johore State Railway, 11,391,093 dollars). There are 2036 miles of highway. In 1908 there were 1341 miles of telegraph and telephone lines.

FINANCE. The revenue and expenditure for three successive years are given in Straits Settlements dollars as follows:

	1906	1907	1908
Revenue.....	27,223,475	28,793,750	24,623,325
Expenditure	18,899,425	20,224,762	25,854,573

The principal items of revenue in 1907 were as follows: Customs, 12,036,721 dollars; railway receipts, 5,200,911; licenses, 4,696,634; land revenue (exclusive of land sales), 1,157,244; forests, 629,626. Expenditure: Public works, 5,437,801 dollars; railways, 5,349,417. There is no public debt.

GOVERNMENT AND MILITARY. A federal council was constituted in 1909. Each native state is represented, and the rubber and tin interests have been granted special representation. The council deals with matters general to the States. The autonomy of the chiefs is preserved in local affairs. The High Commissioner (also Governor of the Straits Settlements) is Sir John Anderson; the Resident-General for the Federated Malay States, Sir William Thomas Taylor.

The states maintain a regiment of Sikh troops (the Malay States Guides) numbering, in 1908, 872 men and 13 European officers; and are policed by a mixed force of Indians and Malays, officered by Europeans (2670 in 1908, including 60 officers).

HISTORY. In July the Governor of the Straits Settlements, Sir John Anderson, took formal possession of the regions recently acquired by treaty, visiting Kelantan on July 19 and Tringganu toward the end of the same month. During the same month a fight was reported between the police and the members of a Chinese secret society, resulting in the killing of four Chinese and the wounding of many others.

The Anglo-Siamese treaty of March 10, 1909 (see SIAM), definitely completed the cession to Great Britain of the Malay States of Kelantan, Keda, Tringganu, Perlis and adjacent islands. During the year Sir John Anderson, Governor

of the Straits Settlements, made a tour of the ceded territories which ended with a visit to Keda in August. The territories thus being formally taken over, the work of reconstructing the administration was planned. It was understood that it would be carried out with a view to interfering as little as possible with local self-governments. For an account of the opium question in the Malay States and the Straits Settlements, see the latter title. A Federal Council was established in 1909, comprising representatives from the several states, with special representatives for the tin and rubber industries, and having to do with matters of general concern, but respecting the local autonomy of the chiefs. The opening of the Council on December 10 was the occasion of a great gathering of Malay chiefs, an elephant procession and addresses by the Sultans of Perak and Selangor.

MALTA. An island in the Mediterranean; a British Crown colony. Area, 91.6 square miles. The colony includes the islands of Gozo (24½ square miles) and Comino, and several islets, with a total area of 117 square miles. Total civil population, April 1, 1909, 212,888. Capital, Valletta; population (with suburb of Florina), about 31,000. Free elementary education is provided (average enrollment, 19,905), besides secondary schools and a university. The inhabitants are mostly Roman Catholics. Malta is the headquarters and the chief coaling station of the Mediterranean fleet. It is strongly fortified; the garrison numbered, March 31, 1909, 7669 officers and men. The islands are highly cultivated, the area under crops being estimated (1908-9) at 41,029 acres. Corn, fruits (especially figs), onions, potatoes, and honey are produced. There were (1907-8) horses, mules, and asses, 11,055; cattle, 7060; sheep, 14,063; goats, 20,920. A considerable portion of the population is engaged in shipping industries. There is a large transit trade. The total actual imports (exclusive of non-dutiable goods) and exports for the fiscal year 1909 were valued at £1,273,049 and £120,330 respectively, against £1,236,530 and £159,436 in 1907-8. There are eight miles of railway, and military (650 miles of wire) and company (720) telephone lines. In 1908-9, 3212 vessels entered (tonnage, 4,036,752). The revenue and expenditure for 1908-9 were £457,520 and £445,021, against £438,348 and £454,669 in 1907-8. Military expenditure for 1908-9, £477,521, of which £5000 was contributed by the colony. Governor and Commander-in-Chief (1909), General Sir H. M. L. Rundle.

Amendments to the constitution were reported at the end of July. The council of government was dissolved.

MANCHURIA. A dependency of the Chinese Empire, lying east of Mongolia and the province of Chili and between Korea and the Amur River. The capital is Mukden.

The estimated area is about 363,000 square miles. The population is variously estimated at from 5,750,000 to 22,000,000; the official Chinese estimate is 16,000,000. Estimates of the area and population of its three provinces are: Feng-tien, or Shengking, 56,000 square miles and 10,312,000 inhabitants; Kirin, 105,000 square miles and 6,000,000 inhabitants; the Amur Province, or Henlungkiang, 203,000 square miles and 1,500,000 inhabitants. The

principal cities, with approximate populations, are: Mukden, over 158,000; Changchun, 80,000; Ying-tse (Newchwang, at the mouth of the Liao River), 60,000; Newchwang (30 miles up the Liao), 50,000; Liao-yang, 40,000; Tsitsihar, 30,000; Tiehling, 28,500; Feng-hwang-cheng, 25,000; Hsin-min-fu and Fakumen, each 20,000. Northern Manchuria is in the Russian sphere of influence, and Southern in the Japanese.

Definite figures for Manchurian production, etc., are not available. There were published, however, early in 1909, agricultural statistics for Feng-tien, the most important province. The approximate area under cultivation and the production are stated as follows: Kafir corn, 2,166,666 acres, 76,526,643 bushels; beans, 1,300,000 acres, 40,716,000 bushels; millet, 433,333 acres, 9,099,993 bushels. The reported acreage under wheat, barley, corn, tobacco, and other crops is 433,334, making the total area under cultivation 4,333,333 acres. There has recently been a rapid increase in the production of soy beans and bean-cake, and the total Manchurian bean export in 1909 was estimated at nearly 1,500,000 tons. The total annual value of agricultural products in Feng-tien is upwards of \$56,300,000. The number of livestock reported for that province is: Horses, 124,008; cattle, 62,000; mules, 124,242; swine, 1,925,260. Manchurian commerce is included in that of China. The Manchurian railways extend from Shanhaikwan, on the Chili frontier, to Mukden, and thence to Port Arthur. Mukden is connected at Harbin with the Trans-Siberian Railway, which runs for 960 miles in Manchuria. There are several branch lines. The Japanese have undertaken to standardize the light railway from Antung to Mukden; in 1909 it was announced that a line would be built from Mukden to Chientas. The approximate revenue and expenditure of the three provinces are stated as follows: Feng-tien, \$2,000,000 and \$3,100,000 respectively; Kirin, \$1,400,000 and \$2,250,000; the Amur Province, \$450,000 and \$600,000. Manchuria is administered by a viceroy (Hsi Liang in 1909) appointed by the Chinese government. See CHINESE EMPIRE and KWANTUNG.

MANHATTAN BRIDGE. See NEW YORK; BRIDGES.

MANITOBA. A province of Canada. The capital is Winnipeg, with an estimated population of 130,000 in 1909. The province is administered by a lieutenant-governor, appointed by the Governor-General of Canada, and acting through a responsible council. The legislative power is vested in a unicameral assembly of 41 members elected for four years. The Lieutenant-Governor in 1909 was Sir Daniel Hunter McMillan (appointed in May, 1906), and the President of the Council was Rodmond P. Roblin. For statistics and other details, see CANADA.

MARATHONS. See CROSS COUNTRY RUNNING.

MARCONI, GUGLIELMO (WILLIAM). An Italian electrical engineer and inventor, who shared with Ferdinand K. Braun (q. v.), the Nobel prize for physics, awarded on December 9, 1909. He was born in Bologna, Italy, in 1874, and was educated in the University of Bologna. He began in 1890 on his father's estate, experiments to test the theory that an

electrical current is capable of passing through any substance, and if started in any given direction of following an undeviating course without the need for a wire or other conductor. He invented an apparatus for wireless telegraphy, which attracted the attention of Sir William Henry Preece, engineer and electrician-in-chief of the English Postal Telegraph, who tested the apparatus with success in England. Soon afterward Marconi succeeded in sending messages from Spezia to a steamer 15 kilometres distant. He also sent messages from Queen Victoria ashore to the Prince of Wales on the Royal Yacht, 1897. He came, in 1899, to the United States, where he used his method in reporting the election of 1900. He succeeded in 1902 in establishing telegraphic communication across the Atlantic Ocean, and in 1904 a daily ocean news service by wireless telegraphy was inaugurated by him on trans-Atlantic liners. He invented, in 1905, the directive method of wireless telegraphy, and in 1906 the continuous wave system.

MARINE GAS ENGINES. See GAS ENGINES.

MARINE LABORATORIES. See BIOLOGICAL STATIONS.

MARLBOROUGH, LILY, DUCHESS OF. Widow of the eighth Duke of Marlborough, died on January 11, 1909. She was born in New York City, the daughter of Commodore Cicero Price, of the United States Navy. She married Louis Hammersly, of New York. He died, and in 1888 she became the wife of the Duke of Marlborough, who died in 1892. In 1895 she married Lord William Beresford.

MARS. See ASTRONOMY.

MARTENS, FRIEDRICH FROMMHOFF VON. A Russian jurist and diplomat, died June 20, 1909. He was born at Pernau, in the Russian Baltic provinces, in 1845. He studied law at the universities of St. Petersburg, Vienna, Heidelberg, Leipzig, and in 1869 received the degree of master of international law from the University of St. Petersburg, and the degree of doctor of international law in 1873. From 1869 Dr. von Martens was continuously in the service of the Russian Ministry of Foreign Affairs. In 1876 he was attached to the person of the Chancellor, Prince Gortchakoff, for special missions. He attended, as Russia's representative, diplomatic congresses at Brussels, Paris, The Hague, Geneva and Vienna. In the deliberations between Russia and Japan for the conclusion of the Russo-Japanese War, at Portsmouth, N. H., in 1905, Dr. von Martens acted as one of the delegates from Russia. He was also prominent in the Peace Conference at The Hague, and was a member of the Permanent International Court of Arbitration. Dr. von Martens was several times chosen as international arbitrator by European and American countries. He served in this capacity as president of the Court of Arbitration, at Paris in 1899, in the dispute between Great Britain and Venezuela. He served as arbitrator at various times, between France and England, England and Holland, and the United States and Mexico. In 1906 he represented Russia at the Geneva Conference for the revision of the Geneva Convention of 1867. He wrote several books on international law of great importance. *Von Martens on International Law* has been translated into Ger-

man, French, Spanish, Japanese, Persian, Serbian and other languages.

MARTIN, Sir THEODORE. An English Parliamentary agent, litterateur and poet, died August 18, 1909. He was born in Edinburgh in 1816, and was educated at Edinburgh University. He practiced as a solicitor in Edinburgh from 1840 to 1845. In 1846 he removed to London, and became a Parliamentary agent for the passage of private bills. He continued this throughout his life. His literary work, which was carried on as an avocation, was begun early. In 1847 he published with W. E. Aytoun, a series of ballads and satires, called *Bon Gaultier*. Of this sixteen editions were published. While he was engaged in writing a life of Aytoun, he was requested by Queen Victoria to undertake a Life of the Prince Consort. This he did and the result was a work which is considered the authority on that period of English political history. His relations with Queen Victoria were of the greatest intimacy up to the time of her death. In 1851 he married Helena Faucit, the famous actress. In 1881 he was chosen Rector of St. Andrew's University. He was knighted in 1880, on the completion of the final volume of the *Life of the Prince Consort*. Among the most notable literary work done by Martin were his translations of foreign classics into English. Among these were the *Poems and Ballads of Goethe* (with Professor Aytoun, 1848); *Faust* (1865); *Odes of Horace* (1860); *Catullus* (1861); *Vita Nuova* (1862); *Heine's Poems and Ballads* (1878); *Six Books of Virgil's Æneid* (1896). He wrote also a *Life of Professor Aytoun* (1867); *Life of Lord Lyndhurst* (2d ed. 1874); *Helena Faucit: Lady Martin* (1901), and *Madonna Pia*, and other plays.

MARTINIQUE. An island of the Lesser Antilles; a French colony. Area, 381 square miles; population, 182,024 in 1906, including 546 East Indian immigrants. Capital, Fort-de-France, with 27,069 inhabitants. The primary schools contain 13,460 pupils; the secondary schools, 561. There is a normal school with 90 students, and a law school with 90. The island is very fertile. There are 15,067 hectares under food-crops. Sugar, cacao, coffee, tobacco (under special regulations), and cotton are the principal products. There are 15 sugar works and 69 rum distilleries. The total imports in 1907 amounted to 15,940,039 francs (France, 8,282,296); exports, 18,997,221 francs (France, 17,254,000). In 1907, 36,922 metric tons of sugar, 12,803,194 litres of rum, and 502,789 kilos of cacao were exported. The colony has exterior communication by telegraph cables. Subsidized mail coaches supply local transportation and subsidized steamers carry on external trade. There were 53 post-offices in 1907. The local budget for 1908 balanced at 6,016,600 francs; expenditure of France (budget of 1909), 1,292,274. Outstanding debt, January 1, 1907, 2,821,000 francs. The Bank of Martinique (1908) had capital 3,000,000 francs, reserve, 1,897,317. The colony is under a governor, assisted by a general council and elective municipal councils. It sends to the French Parliament one senator and two deputies.

MARVIN, ROSS GILMORE. An American meteorologist and Arctic explorer, drowned near Cape Columbia, Greenland, April 10, 1909. He was born in Elmira, N. Y., in 1880, and

graduated from Cornell University in 1905. After two years spent in the study of meteorology, he returned to Cornell as instructor in the college of civil engineering. He accompanied Commander Peary on his Arctic expedition of 1905-6. He was a member of the Peary expedition of 1908-9 as scientist and secretary to the explorer. He commanded a party which had accompanied Peary in his final dash for the pole as far as 86.38 north latitude, and had then turned back. He was caught in a lead in the ice and was drowned.

MARYLAND. One of the Middle Atlantic Division of the United States. Its total area is 13,327 square miles, of which 3386 square miles are water. The population in 1909, according to a Federal estimate made in that year was 1,319,132.

MINERAL PRODUCTION. The chief mineral products in the State are coal and pig iron. Of the former there were produced in 1908, 4,377,093 short tons, valued at \$5,116,753. This is a decrease from the production of 1907 of 1,155,635 short tons in quantity, and of \$1,506,944 in value. The tonnage of 1908 was the smallest of any year since 1900, when the industry was much disturbed by labor troubles. It was caused largely by the depression in the markets where the coal is consumed. In spite of the decreased production, the number of men employed in the mines of the State shows an increase from 5880 in 1907 to 6079 in 1908. There were no strikes in any of the coal mines of the State during the year. There were produced in 1908, 183,502 tons of pig iron, which was a marked decrease over 1907 when there were produced 411,833 tons. There were five blast furnaces in the State on January 1, 1909, of which two were in operation. The clay products of the State in 1908 were valued at \$1,441,099, as against a value of \$1,886,362 for the product of 1907. The State produced in 1908, 806,673 gallons of mineral water valued at \$75,858. A small quantity of iron ore is also produced. Among other products are slate, stone products, small quantities of cement, flint, glass-sand, metallic paint, sand-lime brick, talc and soapstone. The value of the mineral products of the State for the year 1908 was \$11,489,062, as compared with a value of the product of 1907 of \$19,356,250.

The coal production of the State in 1909 was nearly equal to that of 1907 and surpassed that of 1908.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 21,980,000 bushels, valued at \$14,287,000 from 700,000 acres; winter wheat, 11,168,000 bushels, valued at \$12,282,000 from 770,000 acres; oats, 711,000 bushels, valued at \$348,000 from 28,000 acres; barley, 32,000 bushels, valued at 20,000 from 1000 acres; rye, 282,000 bushels, valued at \$220,000 from 20,000 acres; buckwheat, 149,000 bushels, valued at \$110,000 from 9000 acres; potatoes, 2,800,000 bushels, valued at \$1,848,000 from 35,000 acres; hay, 346,000 tons, valued at \$5,126,000 from 297,000 acres; tobacco, 17,750,000 pounds, valued at \$1,473,250 from 25,000 acres. The corn crop in 1909 showed a considerable decrease over that of 1908, which was 24,705,000 bushels. The acreage, however, increased from 675,000 to 700,000 acres. Hay showed a con-

siderable falling off, the production in 1908 being 480,000 tons. Tobacco also fell in production from 18,200,000 pounds to 17,750,000 pounds, while the acreage fell from 26,000 to 25,000. Market gardening and fruit and vegetable canning are extensive industries of the State. The number of farm animals has changed little since 1900, except for an increase in the number of sheep, and a decrease in the number of swine. The estimated wool clip in 1909 was 678,080 pounds.

FISHERIES. The products of the fisheries of the State for the year ending December 31, 1908, was \$3,306,910. Of the fish taken, the most important in point of value were oysters, of which 5,830,200 bushels, valued at \$2,127,140, were taken for market purposes, and 401,800 bushels, valued at \$101,190 for seedling purposes. Next in point of value were shad, of which 3,936,800 pounds, valued at \$246,590, were taken. Soft crabs were taken to the amount of 7,587,300 pounds, valued at \$195,000, and hard crabs, 12,785,900 pounds, valued at \$124,350. Among other important fish taken were alewives, striped bass, menhaden, white perch, yellow perch, sturgeon, catfish and terrapin. The number of fishermen engaged in the fisheries of the State was 8444, and the number of fishermen employed was 9948. There were 1107 vessels engaged in the fisheries of the State, valued at \$821,141.

EDUCATION. The total school enrollment in 1909 was 239,420. The average enrollment was 189,194, and the average attendance was 147,018. The number of male teachers was 900, and the number of female teachers, 4554. The total expenditures for school purposes \$3,934,413. Through an act of the legislature of 1909, commercial departments were established in about 40 of the high schools of the State. Owing to the fact that about 350 new teachers are needed annually, and the Normal Schools supply slightly more than 100, an effort is being made to devise some additional means of supplying trained teachers. The establishment of a training class in one high school in each county is thought to be the most practical plan.

FINANCE. The report of the Comptroller of the Treasury for the year ending September 30, 1908, showed a balance in the treasury on September 30, 1907, of \$1,364,881. The gross receipts during the fiscal year were \$4,513,255, and the total disbursements were \$4,639,483, leaving a balance in the treasury September 30, 1908 of \$1,238,052, against which were principal funds due amounting to \$908,131, leaving a balance applicable to ordinary expenses of \$330,520.

CHARITIES AND CORRECTIONS. The chief charitable and correctional institutions of the State are the Maryland Hospital for the Insane at Catonsville, Springfield State Hospital at Sykesville, the Maryland Tuberculosis Sanatorium at Sabillasville, and the Baltimore Orphan Asylum. There are, in addition, many private institutions that receive State aid.

POLITICS AND GOVERNMENT. The most important event in the political history of the State during the year, was the defeat, in the election of November 2, of the constitutional amendment submitted by the legislature of 1908, which, if it had passed, would have meant the disfranchisement of the non-taxpaying illiterate negro voters of the State. It resembled in its character similar enactments passed by other

Southern States in recent years. The measure was severely condemned by President Taft. The vote against the amendment was about 16,000, and of this, the city of Baltimore gave about 11,500. The election was for State officers, the highest being that of Comptroller of the Treasury, for a legislature, and for most of the county officials. The Democrats lost several candidates in Baltimore City, but gained in the legislature, the new Senate being 21 Democrats to 6 Republicans, and the House 70 Democrats to 31 Republicans. The Democrats held their State convention on August 11, and a proposed endorsement of Senator Rayner for reelection was rejected, because the nomination of Senator was to be made at primary elections, and it was deemed improper for the convention to forestall the primaries. The result showed that there was no opposition to Senator Rayner's reelection. Senator Rayner's record as a Senator was endorsed by the convention. The proposition to give to Baltimore increased representation in the legislature, provoked a controversy between Senator Smith and Governor Crothers. After a recess had been taken, a compromise was reached. The platform, which was devoted almost entirely to State issues, favored the suffrage amendment to the State constitution referred to above. It favored also the creation of a public utilities commission applicable to all public service corporations, and the passage of a pure food law in the State of Maryland, framed along the lines of the Federal law. The Republicans held their State convention on August 25. Nominations were made for State officers and the ratification of the Federal income tax amendment was advocated. Since April 8, 1908, the inheritance tax of 5 per cent has been in force.

A measure was passed by the legislature of 1908 authorizing the municipality of Annapolis to register only such voters for municipal elections as met one of the three qualifications. They must be naturalized citizens of the United States, possess property taxed at \$500, or be descended from a person who voted or could have voted prior to 1868. The law was designed to eliminate as far as possible the large negro vote in the city. On June 7 this measure was put in force, and Republican leaders decided that the case be brought before a Federal court.

The general result of the election of November 2, aside from the defeat of the franchise measures noted above, was a gain for the Democrats throughout the State. The Democrats elected the comptroller and the legislature by an increased majority, insuring the reelection of United States Senator Rayner. Considerable difficulty was found by negroes, who could not read their ballots, in voting in some of the counties, there being in these counties not only no emblems on the ballots, but no designation of the political party of the several candidates.

OTHER EVENTS. On May 23, 500 members of the Maryland Pilgrims' Association from Baltimore and other parts of the State, took part in the celebration of the 275th anniversary of the landing of colonists on Maryland soil in Saint Mary's county. On June 12, a jury in the case of William F. Downs, a clerk charged with stealing \$67,000 from the city, disagreed after being out twenty-four hours.

OFFICERS: Governor, Austin L. Crothers; Secretary of State, N. Winslow Williams; Treasurer, Murray Vandiver; Auditor, George

R. Ash; Comptroller, Joshua Herring; Adjutant-General, Henry W. Warfield; Attorney-General, Isaac L. Strauss; Superintendent of Education, M. Bates Stevens; Commissioner of Insurance, B. Frank Crouse; Commissioner of Public Lands, T. F. Smith—all Democrats.

JUDICIARY. Court of Appeals: Chief Judge, Andrew H. Boyd; Associate Judges, N. Chas. Burke, William H. Thomas, John R. Pattison, Hammond Urner, John P. Briscoe, S. D. Schmucker, and James A. Pearce; Clerk, Caleb C. Magruder—all Democrats except Schmucker and Urner, Republicans.

The State Legislature of 1909 was composed of 17 Democrats, 9 Republicans, and 1 Independent Democrat in the Senate, and 71 Democrats and 30 Republicans in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

MASON, ANDREW. An American assayer, died April 28, 1909. He was born in Scotland and entered the service of the United States government as assistant assayer at New York in 1850. In 1865 he was appointed melter and refiner, and in 1873 superintendent. He held this office until 1907, when he resigned. His discoveries in methods of separating gold and silver from baser metals saved the government large sums, and from Congress he received a vote of thanks and a present of \$1000.

MASSACHUSETTS. One of the North Atlantic Division of the United States. Its total area is 8268 square miles. The population according to the Federal estimate made in 1909 was in that year 3,102,347.

MINERAL PRODUCTION. Massachusetts is one of the most important States in the production of granite. The value of this product in 1908 ranked only below that of Maine and Vermont. The output for 1908 was valued at \$2,027,463, as compared with a value in 1907 of \$2,328,777. The trap rock produced in 1908 was valued at \$608,672, and in 1907 at \$432,604. The production of sandstone in 1908 was valued at \$241,462, and in 1907 at \$243,323. The value of the marble quarried in 1908 was \$175,648, as compared with a value of the product in 1907 of \$212,438. A small quantity of limestone is also produced. The total value of the stone produced in 1908 was \$2,955,195, as compared with a value of the product in 1907 of \$3,218,979. The State has also valuable clay products. Their value in 1908 was \$1,647,302, a marked decrease over the product of 1907 which was \$2,128,820. A large quantity of lime is also produced. The value of this product in 1908 was \$566,022, as compared with a value of the product of 1907 of \$596,778. The State is notable for its production of mineral water, which was produced in 1908 to the value of \$227,907, from 4,395,049 gallons, as compared with a value in 1907 of \$208,579 from 4,661,115 gallons. Among other mineral products which are produced in small quantities are copper, glass-sand, pig iron, lime, aluminum phosphate, asbestos, coke, Fuller's earth, iron ores, litharge, pyrite, red-lead, salt, talc and soapstone. The value of the mineral products of the State in 1908 was \$5,925,949, as compared with \$6,584,181 in 1907.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 1,780,000 bushels,

valued at \$1,447,000 from 47,000 acres; oats, 217,000 bushels, valued at \$126,000 from 7000 acres; rye, 65,000 bushels, valued at \$68,000 from 4000 acres; buckwheat, 58,000 bushels, valued at \$44,000 from 3000 acres; potatoes, 4,250,000 bushels, valued at \$3,358,000 from 34,000 acres; hay, 673,000 tons, valued at \$12,720,000 from 585,000 acres; tobacco, 7,040,000 pounds, valued at \$985,000 from 4400 acres. The potato crop in 1909 increased considerably over that of 1908, which was 3,040,000 bushels, while the acreage increased from 32,000 to 34,000 acres. The production of hay decreased considerably from 1908, when 702,000 tons were raised. The tobacco crop of 1909 was slightly smaller than that of 1908, when the production was 7,444,800 pounds. The acreage also decreased slightly. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 84,000; dairy cows, 192,000; other cattle, 88,000; sheep, 46,000; swine, 68,000. There has been a considerable increase in recent years in the number of sheep, while the number of neat cattle and swine have decreased. The wool clipped for 1909 is estimated at 234,000 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$7,095,230. Of these the most important in point of value was cod, of which 72,217,900 pounds, valued at \$1,944,200 were taken. Haddock were taken to the amount of 48,492,400 pounds, valued at \$1,037,920; mackerel, 10,452,600 pounds, valued at \$761,020; herring, 28,440,400 pounds, valued at \$341,110; halibut, 4,132,800 pounds, valued at \$309,820; lobsters, 2,455,300 pounds, valued at \$307,470; clams, 334,000 bushels, valued at \$378,350; oysters, 154,900 bushels, valued at \$217,980. Other important fish taken were flounders, hake, sword-fish, whiting, and alewives. Whale products for the year were \$335,730. The number of independent fishermen in the State was 3141 and the number of employees 8436. There were 671 vessels employed in the fisheries of the State, valued at \$2,927,766.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State are under the direction of the State Board of Charity, which has had full responsibility also of the care and support of the insane since 1904. The State institutions under the supervision of the Board are the State House at Tewksbury, which had a population in 1908 of 1429; the State Farm at Bridgewater, with a population in 1908 of 1398; Lyman School for Boys, with a population of 419; State Industrial School for Girls at Lancaster, with a population in 1908 of 240; the Massachusetts State Sanatorium at Rutland, with a population in 1908 of 347; and the Massachusetts Hospital School at Canton, with a population in 1908 of 87. The Board has supervision also of certain charitable corporations including hospitals, homes for aged persons, orphans' homes, etc. It is required also to visit city and town almshouses, and include in its annual report a statement of conditions with suggestions and recommendations thereto.

EDUCATION. The total enrollment for the year ending June, 1908, was 530,346. The number of female teachers was 1341, and of male teachers, 13,747. The average monthly salary for male teachers was \$151.39, and for female teachers, \$60.69. The total taxation cost for the support of schools, new buildings, repairs, etc., was \$14,662,825, and the total expenditure

for the support of schools, for new buildings, repairs, etc., was \$19,374,780. By a new law passed by the legislature, the commission on industrial education was abolished, and its duties were transferred to the State Board of Education, which was reorganized.

POLITICS AND GOVERNMENT. The long-standing litigation which arose from the consolidation of the New York, New Haven & Hartford Railroad with the Boston & Maine Railroad, and the acquisition by the former road of many lines of trolleys in Massachusetts, was ended by the action of Attorney-General Wickersham in dismissing the suit brought against the New York, New Haven & Hartford for violation of the anti-trust law. In 1908 a measure was passed by the Massachusetts Legislature making this merger possible. The Massachusetts Supreme Court, however, on March 2 of that year, had decided against the New Haven road's holding of trolley lines in Massachusetts. By this decision the road was required to part with all its holdings in various trolley lines in the State before July 1, 1909. The basis for the dismissal of the suit by Attorney-General Wickersham, was the conviction that competition had not been eliminated by the ownership of the trolley lines. On March 23 the House of Representatives killed woman suffrage in the State by refusing to substitute the bill allowing it, for an adverse report of the committee. Elections for State officials, including Governor, were held in Massachusetts on November 2. At the Republican State Convention held in September, Governor Eben S. Draper and Lieutenant-Governor Louis A. Frothingham, were re-nominated. The convention declared itself in favor of the income tax, and raised the question whether such a tax be levied by the State or by the national government, or whether there should be two taxes, one State and the other national. The Democratic State Convention, held on September 30, nominated James B. Vahey for Governor, and Eugene N. Foss, hitherto an important member of the Republican party, for Lieutenant-Governor. Resolutions were adopted favoring direct nomination, choice of United States Senators by the people, anti-monopoly, condemnation of Governor Draper's veto of the eight-hour bill, tariff reduction, a State tariff commission, and the income tax. At the election on November 2, the Republican State ticket was successful, but it has been many years since the head of the ticket was elected by so small a plurality. Governor Draper's plurality was less than 9000, as compared with the Republican plurality in 1908 for Governor of over 60,000. Various causes led to the reduction of the Republican vote. It was alleged that Governor Draper's feeling toward organized labor, the failure of the Republican Convention to take decisive action on the income tax amendment, the failure of Congress to revise the tariff downward, and the increased cost of living, were among the reasons which led to the increase in the Democratic vote. Vahey carried Boston by approximately 10,500; Fall River and New Bedford, both of which voted for Draper in 1908, this year cast a majority of votes for the Democratic candidates. It was in the large manufacturing cities that the Republican ticket sustained its greatest loss.

During the year the census of the State was completed, covering five years since the previous census. According to the statistics gathered,

the population of the State has risen in that period from 2,845,346 to 3,003,680. This increase represents the smallest percentage gained since 1790, with a single exception of the gain made during the Civil War. The percentage is 7.7, as compared with 12.21, 11.67 and 15.28 per cent. for the three previous censuses. The actual gain was 198,334, as compared with a gain of 305,163, 261,240 and 296,802 for the three previous quinquennial periods. It was found that there were 918,044 foreign-born residents, constituting almost a third of the total population. The Irish constitute the largest single element, numbering 236,373; the French Canadians number 118,247; the English, 83,893, and the Scotch, 24,663. English-speaking Canadians numbered 140,824, and the remainder is divided among a great number of nations, including Swedes, Germans, Poles, Austrians, Greeks and French in the order named.

The first year of the savings bank insurance system in the State closed October 31, 1909. The aggregate insurance of the Whitman Savings Bank, of Brockton, outstanding at the end of the year, not including annuity or pension policies, was about \$1,000,000. After paying interest on the guaranty fund, setting apart the full legal reserve, and in addition an amount equal to 4 per cent. of the premiums to the trustees of the general insurance guaranty fund, the insurance departments earned a surplus from which they have declared to the holders of all monthly premium policies a dividend of 8½ per cent. For the payment of this dividend only 25 per cent. of the surplus profit is required. The remaining 75 per cent. was set apart as a surplus guaranty fund in addition to the legal reserve and general guaranty fund. Of the expenses, over two-thirds consisted of medical fees.

BOSTON. The Finance Commission created by the legislature in 1907, by Mayor Fitzgerald to investigate conditions in the city of Boston, reported on January 29 to the legislature. The report was, in general, condemnatory of the management of almost every department of the city government. The report says, among other things, that the present electoral machinery is wholly unsuited to the requirements of a successful municipal government through popular suffrage. It tends to create bad government, no matter how strongly the people may desire good government. The commission condemned the present system of direct primary nomination, saying that practically an honest and popular man can defeat the machine only by a personal contest with ward politicians in their district. The report says further than the City Council gave no serious consideration to its duties. In 1907, 28 of the 42 joint standing committees had no papers referred to them and held no meetings. The report says that utter demoralization was general at the City Hall, and that graft was everywhere common. A specific review was given of the administration of John F. Fitzgerald, as mayor of the city. All of the departments are reviewed in detail to show the corruptness and extravagance of his administration. Largely as a result of the investigations and recommendations of this committee, the city, on November 2, adopted a charter for a reformed city government, known as plan No. 2. Under this plan the term of the mayor is four years, with the privilege of recall at the end of

two years by not less than a majority of all the registered voters. Nominations are by petition of not less than 5000 voters. There are no party designations on the ballots. A city council with one chamber of nine members, to be elected at large for three years, three to be elected each year after the first election, nominated by a petition of not less than 5000 voters, was created. Voters may vote for all of the nine councilmen. The salaries of councilmen are \$1500 a year. School committees are nominated by petitions of 5000 names. Under the new charter it is made a criminal offense for a member of the city government to participate in the profits of any city contract, and heads of departments must be appointed by the Civil Service Commission before their appointments by the new mayor are valid. Positions on the ballot are to be determined by the drawing of lots. See **ELECTORAL REFORM.**

In accordance with the provisions of this charter, nominations for mayor were made during November and December, closing December 17. Results showed that four candidates had obtained the required number of names on their petitions for nomination. These were James J. Storrow, a nominee of the business men and independents in general; John F. Fitzgerald, who served in 1907 as the Democratic mayor of the city; George A. Hibbard, the mayor in 1909, and Nathaniel H. Taylor, formerly city collector. The day of the election was fixed at January 11, 1910. The campaign carried on was one of the most intense and bitter in the history of the State. No such amount of space as the papers gave to this campaign was ever filled before by any mayoralty contest in Boston. Mr. Fitzgerald, by his wonderful personal efforts and popularity among the Democrats of the city, drew to his support a large part of the Democratic voters. Those who did not believe in ex-Mayor Fitzgerald, joined with most of the Republicans, as followers of Mr. Storrow. Their chief argument for his election was that he was a successful business man of recognized ability and sterling integrity. Mayor Hibbard had not given a particularly strong administration, and his campaign was not very aggressive.

The Suffolk county elections of November 2, resulted in Democratic victories. The chief interest in Boston was the fight for district attorney. For this the Democratic nominee, Joseph C. Pelletier, was successful, leading his nearest opponent, Arthur D. Hill, Republican and holder of office by appointment from Governor Draper, by about 4000. Mayor Hibbard and the officers of the present administration will hold office until the first Monday of February, when the mayor and the councilmen elected at the city election on January 11 will take office and begin the government of the city under the new charter.

On July 1, Michael J. Mitchell, former superintendent of supplies for the city of Boston, and Thomas F. Maher, a contractor, were found guilty of conspiring to defraud the city in connection with the purchase of flagstones.

OTHER STATE EVENTS. On June 2, the first spadefull of earth was dug in the construction of the canal across Cape Cod, by August Belmont, president of the holding company which is financing the work. The canal project has been advocated for many years. The canal will shorten the distance between Boston and New York by nearly 100 miles. The principal gain,

however, will be the avoidance of the rough water and treacherous shoals and beaches of Cape Cod, upon which nearly two thousand wrecks have occurred since 1800. See CANALS.

LEGISLATION. Among the important measures enacted by the legislature of 1909 are those noted below: One of the most important pieces of legislation enacted was the new charter for the city of Boston. (See above.) A measure was enacted incorporating the Boston and Maine Holding Company, which was intended to be a solution of the question of the control of the New York, New Haven and Hartford Railroad over the Boston and Maine. The Holding Company will hold the stock of the Boston and Maine under the Massachusetts law and the New York, New Haven and Hartford will own the stock of this Holding Company and also control the Boston and Maine through the Holding Company, and will also, through the Holding Company, be under the supervision of the State. The sum of \$100,000 annually was placed at the disposition of the Harbor Commission to be used in improving harbors, rivers, tidewaters, and foreshores, thus making it unnecessary to appeal to the legislature whenever an improvement is needed. An amendment to the State constitution was recommended, repealing the provision of the constitution which requires that taxation shall be proportionate, and authorizing the legislature to classify property in a reasonable manner for purposes of taxation. Several laws were passed relating to the subject of State forests. The gaming laws were substantially amended. The Boston and Maine Railway was authorized to adopt a pension system for its employees. Railroads were made liable to towns for the expense of extinguishing forest fires caused by them negligently or in violation of the law. The Governor was authorized to appoint commissioners to promote uniformity of legislation between the different States. New acts were passed relating to the restriction of speed for automobiles and motor vehicles.

OFFICERS: Governor, Eben S. Draper, Rep.; Lieutenant-Governor, Louis A. Frothingham; Secretary of State, Wm. M. Olin; Treasurer, Elmer A. Stevens; Auditor, Henry E. Turner; Adjutant-General, W. H. Brigham; Attorney-General, Dana Malone; Secretary of the Board of Agriculture, J. Lewis Ellsworth; Commissioner of Insurance, Frank C. Hardison; Secretary Board of Education, George H. Martin—all Republicans.

JUDICIARY. Supreme Judicial Court for the Commonwealth: Chief Justice, Marcus P. Knowlton; Justices, James M. Morton, Arthur P. Rugg, Henry Newton Sheldon, John W. Hammond, William C. Loring, and Henry K. Braley; Clerk of the Court, Clarence H. Cooper—all Republicans.

The State Legislature of 1909 was composed of 34 Republicans and 6 Democrats in the Senate, and 174 Republicans, 59 Democrats and 7 others in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY. An institution for technical learning in Boston, Mass., founded in 1864. The attendance in 1908-9 was 1462 students, 95 professors, 68 instructors, 51 assistants and 31 lecturers. There are in the library 80,000 volumes. Gifts amounting to \$83,341 were re-

ceived during the year. The productive funds of the institution amount to about \$2,800,000 and the total income to about \$700,000. Richard C. Maclaurin (q. v.) was inaugurated president to succeed Acting President A. A. Noyes. A new course in electro-chemistry was established in 1909.

MATHEWS, WILLIAM. An American writer, died February 14, 1909. He was born at Waterville, Me., in 1818, and graduated at Waterville College (Colby College) in 1835. He studied law at Harvard College and was admitted to the bar in 1838 and practiced law at Waterville in 1841. Soon after, he established a newspaper, the *Watervillonian*, afterward changed to the *Yankee Blade*. In 1856 this was sold and united with the *Portfolio*. In the same year he removed to Chicago, and from 1859 to 1862 was librarian of the Young Men's Association of that city. From 1862 to 1875 he was professor of rhetoric and English in the University of Chicago. From the latter date his time was wholly devoted to literature. Among his published works are: *Getting On in the World* (1873); *Words—Their Use and Abuse* (1876); *Literary Style and Other Essays* (1881); *Wit and Humor—Their Use and Abuse* (1888); *Conquering Success*. He was also a contributor to several encyclopædias.

MATTEUCCI, VITTORIO RAFFAELE. An Italian seismologist, died July 16, 1909. He was born at Senigaglia, Italy, in 1860. After graduating from the University of Naples, and studying at Heidelberg, he entered directly upon the study of seismic disturbances, especially with reference to Mount Vesuvius. In 1902 he became director of the observatory on that mountain. In the eruption of 1900 he was severely wounded. He displayed the highest courage by remaining at his post during the eruption of 1906, and sending messages to allay the panic in the cities below. He was not injured, although the building in which he had stationed himself was wrecked by hot ashes. Dr. Matteucci's studies in seismology are of great value.

MAURER, HENRY. An American Mennonite missionary, killed at Adana, Asia Minor, during the massacres by fanatical Turks (see TURKEY). He was born in 1879, and after a high school education, became an evangelist. He became a missionary in 1906. He was killed while attempting to defend a mission school from attacks of the Turks.

MAURITANIA. A civil territory (since 1903) in French West Africa (q. v.), extending from Senegal northward to Morocco. Area, 344,967 square miles. The population, which includes the Moorish tribes of Trarza and Brakna, was estimated in 1906 at 223,000. At the head of the administration is a commissioner, who is under the Governor-General of French West Africa. In January, 1909, it was announced that all Mauritania, where turbulence is chronic, was to be reorganized as a French protectorate.

MAURITIUS. An island in the Indian Ocean about 500 miles east of Madagascar, constituting a British Crown colony. Area, 705 square miles; population (1901), 375,385, of whom 261,191 were of Indian origin or descent. Capital, Port Louis, with 52,740 inhabitants in 1901. The government provides primary and secondary instruction, expending thereon Ra.

623,131 in 1908 (1 rupee = 32.44 cents). The staple product is sugar, which constitutes over 90 per cent. of the total exports. Imports and exports in 1907 were valued at Rs. 21,798,887 and Rs. 40,478,113 respectively; in 1908, 17,210,947 and 33,464,263. In 1908 there were 129 miles of railway, 63 post-offices, and 57 telegraph offices, with 331 miles of wire. Revenue in 1906-7, Rs. 10,329,618, and expenditure, Rs. 10,174,508; in 1907-8, 8,722,727 and 9,853,009 respectively. The public debt on June 30, 1908, amounted to £1,311,290. The colony is administered by a governor, aided by an executive council. There is a legislative council of 27

made to the regulations was that permitting the use of benzoate of soda as a preservative of meat or meat food product, in conformity with the ruling under the foods and drugs act. Four additional veterinary inspectors were assigned to travel and investigate the meat inspection service at the various stations, making a total of seven inspectors now so engaged.

During the fiscal year the inspection was conducted at 876 establishments located in 240 cities and towns, an increase of 89 establishments and 29 cities and towns.

The number and results of Federal inspections are given in the following table:

FEDERAL INSPECTIONS OF ANIMALS FOR THE TWELVE MONTHS ENDING JUNE 30, 1909.

Kinds of Animals	Ante-mortem inspections			Post-mortem inspections			
	Passed	Inspected	Total	Passed for food	Passed for lard and tallow only	Condemned	Total
Cattle	7,547,969	40,175	7,588,144	7,287,793	2,441	35,103	7,325,337
Calves	2,069,529	4,060	2,063,579	2,038,494	4	8,213	2,046,711
Sheep	10,990,274	2,305	10,992,579	10,792,078	78	10,747	10,802,903
Goats	69,882	1	69,883	69,111		82	69,193
Swine	35,808,887	22,665	35,831,552	35,244,006	97,014	86,912	35,427,931
Total	56,476,541	69,196	56,545,737	55,431,481	99,537	141,067	55,672,076

members, 10 of whom are elective. Several small islands and groups in the Indian Ocean are dependencies of Mauritius. A royal commission of three was appointed in May to investigate the conditions and resources of Mauritius. The three commissioners were Sir Frank Swettenham, S. E. L. O'Malley and H. B. D. Woodcock. For the week ending November 25 thirty-eight cases of the plague were reported, and fourteen deaths.

MAYOTTE and the COMORO ISLANDS. A group of islands, half way between Madagascar and the coast, belonging to France and under the control of the Governor of Réunion. Total area, 837 square miles; total population (1906), 96,314. The island of Mayotte (containing about one-fourth of the total inhabitants) had (1902) 3 schools with 78 pupils. Sugar is the chief production; there are 7 sugar works and 3 rum distilleries. Vanilla, coffee, tea, cacao, and rubber are cultivated. Imports (1907), 463,610 francs; exports (chiefly sugar and vanilla), 1,023,397 francs. In 1906, 101 vessels of 121,639 tons entered. The local budget of Mayotte and dependencies (1907) balanced at 247,410 francs. France expended, in 1909, 3000 francs for a hospital building. Outstanding debt, January 1, 1907, 883,760 francs. The Glorieuse Archipelago (with 14 inhabitants) belongs to Mayotte. The Comoro Islands consist of Grande Comore, Moheli, Anjouan, and a number of smaller islands. The population is chiefly Mussulman. The Governor of Réunion appoints an administrator for Mayotte, and a resident each for Grande Comore, Moheli, and Anjouan.

MEAT AND MEAT INSPECTION. The Federal meat inspection work continued to increase during 1909 until it almost reached the maximum that can be carried on under the standing appropriation of \$3,000,000 made by Congress in 1906. During the fiscal year ending June 30, 1909, the expenditure amounted to \$2,888,000, an increase of about \$165,000 over the previous year. The only amendment

Tuberculosis continues to be the cause of condemnation of the greater portion of the condemned cattle and hog carcasses, over 99 per cent. of the condemnations of parts of hog carcasses being due to this disease.

The amounts of meat and meat food products condemned on reinspection during the fiscal year due to being found sour, tainted, putrid or unclean, etc., were: Beef, 13,216,568 pounds; pork, 11,285,323 pounds; mutton, 124,687 pounds; veal, 52,794 pounds; goat meat, 382 pounds; a total of 24,679,754 pounds. This is a decrease of 43 per cent. from those of the previous fiscal year, which indicates improvement in methods of handling the products in sanitary conditions.

Market inspection was extended to 4 more cities, making a total of 37 cities at whose public markets Federal meat inspection is conducted.

During the year, 397,925 inspections were made of export animals, including reinspections of 227,255 animals, besides inspecting 50,943 Canadian animals in transit through the United States for export, and 173 inspections were made of vessels carrying live-stock, in order to see that the fittings, equipment, ventilation, feed, water, attendants, etc., conformed to the regulations.

Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, under whose direction the Federal meat inspection work is carried on, called attention in his annual report to the real and serious danger to the public from uninspected meat, within which class comes almost one-half of that consumed in this country. As the Federal authority only extends to meats which enter into interstate and export trade, the people must look to the State and local authorities to protect them against the danger from that source.

One result of the Federal inspection is to cause the diversion of diseased and suspicious-looking animals to the uninspected establishments, where they are slaughtered for the local

markets. While many cities have an inspection service but very few have a sufficient force of inspectors, and the inspection often consists merely in the examination of meat as offered for sale in the markets, when it is usually impossible to detect disease, the evidence of which may have been removed with the viscera or

though inspection had been extended to 168 more establishments. There has, however, been an increase in the slaughter of calves, as indicated by inspection returns, of over a quarter of a million annually. This increased marketing of veal is augmenting the decrease in the supply of cattle.

EXPORTS OF PRINCIPAL MEAT PRODUCTS DURING THE PAST TWO FISCAL YEARS.

Product	1908		1909	
	Quantities Pounds	Values	Quantities Pounds	Values.
Beef, canned	23,376,447	\$ 3,467,875	14,895,527	\$ 1,645,822
Beef, fresh	201,154,105	20,339,377	122,952,671	12,698,594
Beef, salt, etc.	47,896,087	3,319,950	44,789,063	3,472,367
Tallow	91,397,507	5,399,219	53,332,767	3,000,366
Bacon	241,189,929	25,281,248	244,578,674	25,920,490
Hams and Shoulders	221,769,634	25,167,069	212,170,224	23,526,807
Pork, canned	4,957,022	532,442	5,719,930	620,193
Pork, fresh	16,374,468	1,551,450	9,555,315	938,025
Pork, salt, etc.	149,506,937	13,332,654	52,354,980	4,599,431
Lard	603,413,770	54,789,743	528,722,933	52,712,569
Total value		\$152,181,020		\$129,134,168

organs. As a rule, sanitary conditions are very bad at uninspected slaughter-houses. In order to provide real protection against disease and unwholesome meat a competent veterinary and sanitary inspection at the time of slaughter is essential. As illustrative of the conditions which obtain at local abattoirs, of 327 slaughter-houses recently inspected in Indiana by the State Board of Health only 23, or 7 per cent., were found to fulfill the sanitary standards.

The need of local inspection as a supplement to Federal inspection was discussed by Dr. A. M. Farrington, Assistant Chief of the Bureau of Animal Industry, in an address before the State and National Veterinary Inspectors. He emphasized the fact that it is almost impossible to secure an effective system of local meat inspection without a great increase in the number of competent meat inspectors employed or a concentration of the business of slaughtering. The plan of concentration of slaughtering is supported by the experience of all the older civilized countries. In Europe, union or central abattoirs are owned by the municipalities. By an edict of the German Minister of Agriculture issued in 1908 towns and parishes are obliged to have slaughter-houses, private slaughter-houses being licensed only in cases of exceptionally large exports which cannot be managed in public abattoirs. The towns and parishes are compelled to provide for the execution of meat inspection. Among the advantages to be gained by such concentration of the business of slaughtering are: the use of machinery, increased facilities supplied in the way of abundance of hot and cold water for cleaning purposes, better refrigeration, and the increased value received from the by-products, which are practically lost by the small slaughterer.

There has been a marked decrease in the exports of meat products during the past year, as shown in the above table, due largely to a decreased production and an increased home consumption. During the last three years the number of cattle slaughtered in the United States has decreased until in the past year there were 296,380 fewer cattle inspected at slaughtering points than two years before, al-

During the year the first successful shipment of chilled beef from Australia was received at London, having been 62 days in transit. It now appears that the system of chilling instead of freezing will develop into a considerable movement and bring Australia and New Zealand into the field as competitors with the American trade.

For a study of the retail prices of meat see **FOODS AND NUTRITION.**

MEDICAL PROGRESS IN 1909. Probably the greatest amount of original investigation continued to be done in tropical diseases, the activities incident to opening up large areas to white domination or settlement affording a constant stimulus in this field (see **INSECTS AND THE PROPAGATION OF DISEASE, SLEEPING SICKNESS, TROPICAL MEDICINE**). Considerable progress was made in the science of preventive medicine and efforts were made to exchange information among several countries relative to this subject (see **HYGIENE, PLAGUE, RABIES, TYPHOID FEVER, TETANUS**). The use of specific serums in the treatment or prevention of disease was more extensive than ever before (see **ANTITOXIN, SERUM THERAPY**). Investigation as to the ultimate cause of cancer continued to be made in many quarters, and popular appreciation of the problems in connection with the control of tuberculosis was widespread (see **CANCER, TUBERCULIN, TUBERCULOSIS**). A number of new drugs made their appearance (see **OXONE, PEROGEN, PARA COTA, PHLORIDZIN, THYRESOL**). Other medical items or statistics will be found under their proper heads.

MENDELISM. See **CHEMISTRY, INDUSTRIAL.**

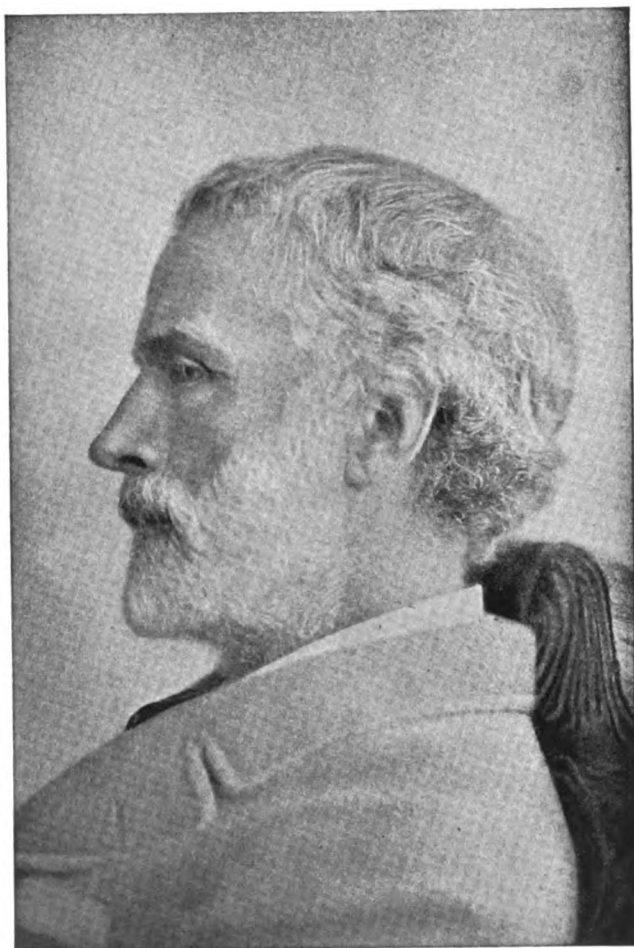
MENDES, CATULLE. A French novelist and playwright, killed in the railroad tunnel of St. Germain, Paris, on February 8, 1909. He was born at Bordeaux in 1841, the son of a Jewish father and a French mother. His earliest years were spent in Italy and Germany. At the age of 18 he founded a magazine, the *Revue Fantaisiste*, at Paris, and at 21 published his first volume of verse, *Philomela*. Shortly after he was imprisoned for publishing an erotic poem called "Le roman d'une nuit." On his release

he went to Germany and studied at Heidelberg. Returning to Paris in 1806, he married Judith, the daughter of Théophile Gautier, from whom he afterwards separated. Mendès wrote 45 novels and volumes of tales, several volumes of poems, much literary and dramatic criticism under the pen-name of "Jean Frollo," and half a dozen remarkable dramas in verse. He was one of those who assisted effectually in making Wagner's operas popular in Paris. His best known books were *Contre Épiques*, *Le Roi Vièrge*, *La Femme Enfant* and *Le Confessionnal*. His notable plays were *Le Capitaine Fracasse*, *Fiammette*, *Le Châtiment*, and *Les Mères Ennemies*. His last work, which remained unfinished, was a drama with Napoleon I. as the central figure.

MENNONITES. A denomination of evangelical Protestant Christians which had its beginning in Switzerland in the sixteenth century. It derived its name from Menno Simons, who was the leader of the sect in Holland. The Mennonites first settled in the United States in 1683, when immigrants built a church in Germantown, Pa. The denomination has twelve bodies, the most important of which is the Mennonites proper, who in 1909 numbered 18,674 communicants, 220 churches and 346 ministers. The other most important branches with their membership are as follows: General Conference, 11,661; Amish, 7640; Old Amish, 5013; Brethren in Christ, 2801; Reformed, 2079; the other bodies numbered only a few hundred members. The total number of all communicants in the denomination in 1909 was 54,798, with 604 churches and 1006 ministers. The denomination maintains educational institutions at Elkhart, Ind., at Newton, Kan., and at Bluffton, Ohio. It maintains a publishing house at Elkhart, where the official paper, *The Herald of Truth*, and several other periodicals are published. The denomination carries on domestic and foreign missions, and great activity has been shown in this work in recent years.

MEREDITH, GEORGE. An English novelist and poet, died May 18, 1909. He was born at Portsmouth, Hampshire, England, in 1828. His mother died when he was in his fifth year and his father, marrying again, emigrated to Cape Town, where he carried on the business of a tailor for some years, until his return, when he settled at Southsea. Of his parents Meredith seldom spoke. His father lived to be 75, and Meredith is reported to have said of him that he was a muddler and a fool. His mother, who was of Irish origin, was said to have been handsome, refined and witty. The boy was practically left alone in boyhood and was placed, by the trustee of his mother's small property, at school. He was sent to school at Neuwied, Germany, where he remained until he was 16 years of age. When he returned to England he found that this trustee had squandered the little estate of his mother, leaving only enough to article him to a London lawyer. He had, however, no taste for law and drifted into journalism. He did work for several papers, earning barely enough to maintain his existence. He wrote poetry at an early date and on July 7, 1849, his first poem, "Chillianwallah," appeared in the *Chambers Edinburgh Journal*. In the same year he married Mary Ellen Nichols, one of the daughters of Thomas Love Peacock, the novelist. She was a brilliant and witty woman,

but their married life was unhappy. In 1851 appeared Meredith's first book of poems, a thin volume of 150 pages, including "Love in the Valley." The book's reception, although not remarkable, was warm enough to encourage the writer to continue. Charles Kingsley and W. M. Rossetti were among those who reviewed the book with considerable enthusiasm. At the end of 1855 was published his first prose work, *The Shaving of Shagpat*, and between the publication of his first volume of poems in 1851 and this work there are few data for biography. His living was earned by contributions to the periodical press, but these were unsigned and there is no record of them. During this period his oldest son was born. *The Shaving of Shagpat*, published, as noted above, in 1855, was a remarkable production, written after the fashion of the *Arabian Nights*, but full of grotesque absurdities and whimsicalities. It received many appreciative reviews, one among others, from George Eliot, but it did not have a large sale. In 1856 appeared his first novel, *Farina*. Meredith seems to have become a professional journalist about 1856 or 1857. About this time he became editor of the *Ipswich Journal* and was also correspondent for the *London Morning Post*. He remained in active journalistic work about seven or eight years, during which his most important experience was obtained as a war correspondent for the *Morning Post* in the Austro-Italian war of 1866. Soon afterward he abandoned journalism, which was not at any time congenial to him. Before this, however, he had put forth the novels which are considered to be his masterpieces, *The Ordeal of Richard Feverel* (1859), the year of the publication of *Adam Bede*; *Evan Harrington* (1861); *Sandra Belloni* (1864), and *Rhoda Fleming* (1865). He published also in 1862 *Modern Love and Other Poems of the English Roadside*. These were the most productive years of his literary career and the most eventful of his life. He was, during this period, a frequent contributor of verse to *Once a Week*, where his poems were illustrated by the greatest artists of the day. In 1860 his first wife died. For the greater part of their married life they had lived separately. In about the same year he succeeded John Forster as reader for the publishing firm of Chapman and Hall, which position he continued to hold for most of the remaining years of his life. At this period he formed warm friendships with Swinburne, D. G. Rossetti, F. A. Sandys, and other notable men. The novels issued during this period, while appreciated by a few, were not received with general praise. *Sandra Belloni*, issued in 1864, was more favorably received than its two predecessors. Of his book of poems, *Modern Love*, even less was said. It was, however, defended against its critics by a brilliant letter by Swinburne in the *Spectator*. In 1864 Meredith was again married. His second wife was a lady of French descent and their life together was an ideal one. At the beginning of 1866 the novel *Vittoria* made its appearance serially in the *Fortnightly Review*, and was later brought out in three volumes. Its reception was not cordial and it was not reprinted for nineteen years. It was, however, warmly praised by the *Revue des Deux Mondes*. This was one of the first indications that Meredith was establishing a foreign reputation. *The Adventures of Harry Richmond* in the winter of 1871, after having run serially in the *Corn-*



George Munro Smith

hill Magazine, with illustrations by George Du Maurier, received rather more attention from the press than any of the author's previous works, although it did not reach a second edition for fourteen years. Except for *The Song of Theodolinda* Meredith published nothing more until 1874, when *Beauchamp's Career* began serially in the *Fortnightly Review*. This was published in book form in 1875, and a two-volume edition by Tauchnitz for continental readers was published in 1876, indicating the widening of the novelist's public. From this period there followed almost twenty years of fruitful literary activity. In 1879 *The Egoist* was published and this was warmly received and widely discussed. In 1881 there came *The Tragic Comedians*, and in 1884 *Diana of the Crossways*, which, as far as the popular taste is concerned, was the most widely read of all Meredith's novels. In the same year his second wife died, leaving a young daughter and son 22 years old. About this time also began a general appreciation of the great novelist in America. In 1890 *One of Our Conquerors* was published serially in the *New York Sun*. In 1894 the last of Meredith's works to be issued in the old three-volume form, *Lord Ormont and his Aminta*, was published, and in the following year appeared his last novel, *The Amazing Marriage*. Although now only 67 years of age and still in fullest possession of his brilliant faculties, Meredith ceased the writing of novels, and, except for occasional poems, he did no further important literary work. In 1898, however, he completed the revision of his novels and made many alterations, many of which are deplored by readers of the former editions. In 1892 on the death of Lord Tennyson, Meredith was chosen president of the Society of Authors. Six years later, when he attained his seventieth year, the occasion was marked by the presentation of a congratulatory address signed by a number of men and women of foremost distinction in literature on both sides of the Atlantic. His health continued good except for an affliction which deprived him of the use of his lower limbs and made him a prisoner in his chair. In 1903 he had a serious illness, from which, however, he recovered with faculties unimpaired. In July, 1905, he was appointed by King Edward to the Order of Merit. His eightieth birthday was an event of almost historic importance in the literary world. He lived still another year, but a chill contracted at the end of the second week in May, 1909, proved too much for his enfeebled frame, and on May 18, 1909, he died of heart failure. On May 22 a memorial service was held in Westminster Abbey.

At the time of his death Meredith was undoubtedly the most conspicuous literary figure in the English-speaking world. As a novelist he is to be considered as contemporaneous rather with the great writers of the middle 19th century, Dickens, Thackeray and George Eliot, and it is this that accounts in great measure for the comparatively slight consideration given to his great novels at the time they were published. To the public which lived upon the works of these great writers, Meredith's keen, psychological and often obscure style was not welcome. It may be said indeed that he never will become one of the popular novelists. Those to whom intellectual effort is an exertion will never take pleasure in reading Meredith. He was, before all things, a student of life, and

his attitude was that of an amused but not unkindly cynic, who stands aside and watches his characters act on each other without apparent sympathy and without any effort to guide their destinies. His so-called "obscurity" of style did not result from his inability to write clearly, but rather from his attempt to pack as much thought as possible into a phrase, to say only what is worth saying and to say it in terms charged with the fullest significance. He is, above all, the novelist of intellect. Among the characters in his books there are many which will always stand among the great personages of fiction. Sir Willoughby Patterne, Evan Harrington, Richmond Roy, Rhoda Fleming, and others represent types as clear as any found in the pages of Dickens or Thackeray. Meredith's poetry partakes of the quality of his prose. By many he is considered to be among the great English poets, but his greatness will never have the stamp of popular approval. He had a perfect understanding of nature and many of his poems are profound in conception and masterly in execution. Among the volumes of his verse, in addition to those mentioned above, are *Ballads and Poems of Tragic Life* (1887); *The Reading of Earth* (1888) and *The Empty Purse* (1892).

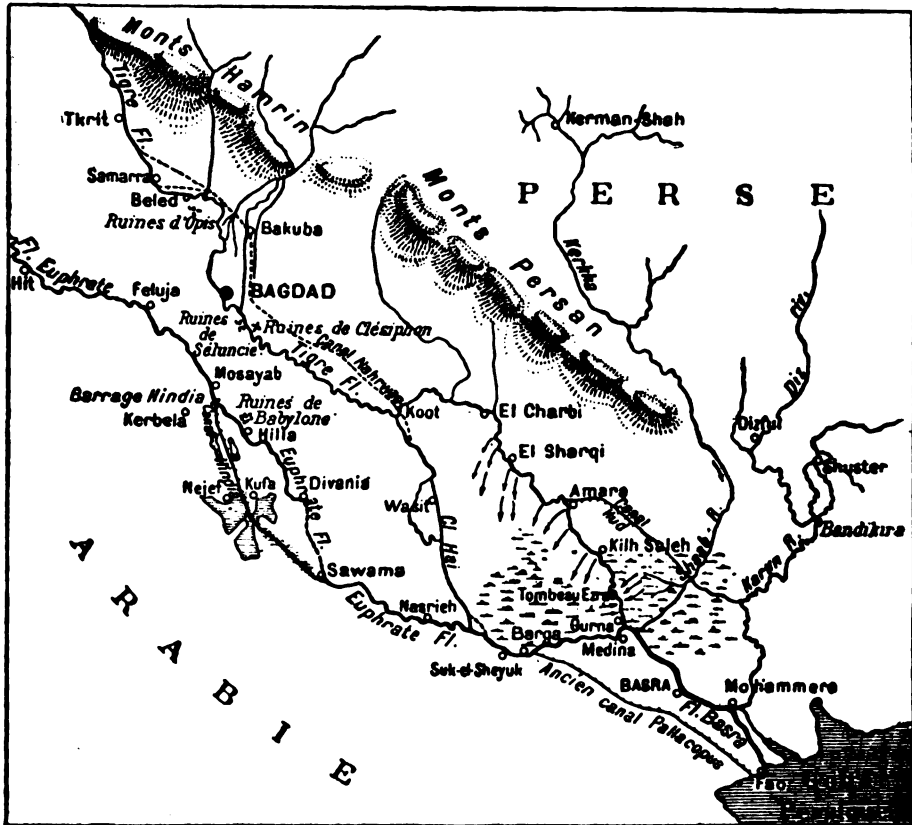
MERX, ADELBEET. A German theologian and Orientalist, died in August, 1909. He was born at Bleicherode in 1838 and studied at the Universities of Marburg, Halle and Berlin. From 1865 to 1875 he was professor of Semitic philology and theology at different universities. In the latter year he was appointed to the chair of theology at Heidelberg. Dr. Merx belonged to the school of liberal theologians, which acknowledges the right of unrestricted criticism of the scriptures. Among his published works are: *Das Gedicht von Hiob* (1871); *Die saadjanische uebersetzung des Hohenliede ins Arabische* (1883); and *Idee und Grundlinien einer allgemeinen Geschichte der Mystik* (1893).

MESOPOTAMIA. PROPOSED IRRIGATION SCHEME. The irrigation of the valleys of the Euphrates and Tigris promised to become an engineering and economic development of unusual importance when Sir William Willcocks was retained in 1908 as adviser to the Turkish government. The work of this famous engineer in Egypt and the preliminary examination of conditions in Chaldæa aroused considerable enthusiasm among the more progressive elements of Turkey, and he was directed to prepare plans for the establishment of an irrigation system which involved the expenditure of over £7,300,000. The Mesopotamian problem differs from that of Egypt, where the floods last from August to October, as in the valley of the Euphrates and Tigris they last from March to May and are followed by a hot, dry season which prevails through the summer. Consequently irrigation by inundation is impossible and an elaborate system of irrigation canals must be undertaken. Mesopotamia has an area of 13,840,000 acres, of which practically one-tenth would be at once available for irrigation and about one-half could be rendered fit for agriculture after preliminary clearing. The territory is shown by the accompanying map, and the plan presented by Sir William Willcocks to the Turkish government on September 21, 1908, provided, not only for irrigation, but for engineering works to prevent floods and improve

the navigation of the Euphrates and Tigris rivers. Dykes closing the breaches in the banks of both rivers at a cost of £20,000 were proposed to stop the floods, while the irrigation of the delta between the Mosayab and Sawama along the Hilla branch of the Euphrates would require three barrages, one above the Hindia barrage and the others at Hilla and Diwania which would be used to restore the old canal. The cost of this was estimated at £1,500,000. To irrigate the delta between Feluja-Mosayab on the Euphrates and Bagdad Seluncie on the Tigris, a territory of 618,000 acres, would require the construction of a barrage at Feluja and the provision or restoration of irrigation canals, the largest of which could be used for

3,212,000 acres. The estimated annual return was £983,000, with the cost of maintenance £650,000 or 10 s. per hectare.

In 1909 Sir William Willcocks after a personal investigation in the field submitted to the Turkish government on September 1 revised estimates and specifications for four parts of the work which called for the expenditure of £1,394,700 (Turkish). The essential features of these estimates were the construction of a new Hindia barrage, locks in both old and new Hindia barrage and the clearing out of the Hilla branch of the Euphrates at a total of £312,900 (Turkish), the construction of a diversion channel, regulating works to control in a natural reservoir the floodwaters of the



MAP OF THE DELTA OF THE EUPIHRATES AND TIGRIS (From *Le Génie Civil*.)

navigation between Feluja and Bagdad. The cost of this part of the project was estimated at £2,000,000. The old Hai canal served for the irrigation of a portion of the delta, but in modern times this territory was watered only by the high waters of the Tigris so that it would be necessary to build a barrage at Koot and construct a system of canals at a cost estimated at £1,500,000. This would provide for the irrigation of some 741,000 acres. Ruined canals once provided irrigation for the upper delta of the Tigris or a territory of 445,000 acres and would involve the restoration of the barrage at Samara to the canal system. Finally in the lower delta around Gurna and Basra 173,000 acres could be reclaimed from marsh or irrigated at a cost of about £300,000. The total cost of the projects to be undertaken would amount to about £7,320,000 and would serve

Euphrates, at a cost of £199,300 (Turkish), the construction of the Feluja barrage with lock and reservoir, at a cost of £241,600 (Turkish), and finally the construction of the Koot barrage and the restoration of the Hai canal, which would involve an expense of £640,000 (Turkish). In 1909 the Turkish government had appropriated £1,224,000 (Turkish), but the work had not been begun. It was estimated that once the funds were available the entire programme could be executed within eight years. As an alternative to government financing of the proposition it was proposed to give a concession to foreign capitalists, but this was not regarded with much favor by the Young Turk Party. It seemed indisputable, however, that the execution of such a scheme of hydraulic engineering would restore the fertility of the plains of Mesopotamia and at the same time

give increased facilities for transportation. He also recommended, as an essential part of the plan for developing the region, the construction of a light railway from Bagdad to the Mediterranean for the transportation of agricultural products.

MESSINA. See EARTHQUAKES and ITALY.

METALLURGY. See CHEMISTRY, INDUSTRIAL.

METALS. See CHEMISTRY, INDUSTRIAL.

METCALF, WILLIAM. An American steel manufacturer and metallurgist, died December 5, 1909. He was born in Pittsburg in 1838 and graduated from the Rensselaer Polytechnic Institute at Troy, New York, in 1858. From 1860 to 1865 he was in charge of the manufacture of heavy Rodman-Dahlgren guns at the Fort Pitt Foundry, Pittsburg. At this foundry was made most of the heavy artillery used by the government during the Civil War. From 1868 he was engaged in the manufacture of steel and he is credited with having made the first crucible steel in America. At the time of his death he was head of the Braeburn Steel Company, which he organized in 1897. Mr. Metcalf wrote a number of books on the manufacture of steel which are regarded throughout the world as standard works. In 1880 he became president of the American Institute of Mining Engineers and in 1893 was chosen president of the American Society of Civil Engineers, and was a member of many other technical societies. He was also connected with several banking institutions and insurance companies in Pittsburg.

METEORIC FALLS. See GEOLOGY.

METEOROLOGY. MOUNT WEATHER METEOROLOGICAL OBSERVATORY. The Annual Report of the Chief of the United States Weather Bureau for the fiscal year ending June 30, 1908, appeared in May, 1909, and showed that, notwithstanding the total destruction of the administration building by fire on October 23, 1907, the research work at Mount Weather was carried on without material curtailment. The staff of the Observatory was particularly active in solar physical and upper-air research. In the former, records of pressure and temperature were obtained daily, except Sunday, by means of kites and captive balloons. The records were computed for each day so as to show all peculiarities or changes in the temperature gradient, altitudes of clouds, depths of cloud and fog layers, and the highest points reached. The records were obtained for the most part by means of kites, but occasionally when the wind was too light for kite-flying captive balloons were used, thus enabling the observers to get a continuous series of records. Plans have been made to secure, in addition to the data mentioned above, a record of the relative humidities and wind velocities in the upper atmosphere, and to make the kites and balloons a means of studying the electrical conditions obtaining at similar altitudes. The work in solar physics included the measurement of the amount and intensity of the solar radiation, the degree of absorption of the atmosphere, and the polarization of blue sky light, and the determination, by means of the above data and an empirical formula developed by Professor H. H. Kimball, of the solar constant.

UPPER-AIR RESEARCH IN THE TRADES. Messrs.

Teisserenc de Bort and A. L. Rotch published a general summary of the results of the meteorological cruises of the *Otaria* on the Atlantic in 1905, 1906, and 1907. The first expedition was organized in 1905 for the study of the trade-winds and the anti-trades by means of free balloons, the trajectories of which were determined by triangulation. The cruises were confined chiefly to that region of the Atlantic north of latitude 10° N. in which lie the Canaries, the Azores, and the Cape Verde Islands, although, in the summer of 1906, one cruise was undertaken which extended as far as Ascension Island in latitude $7^{\circ} 55'$ S. As a result of observations made on the Prince of Monaco's yacht *Princesse Alice* in the region between the Canaries and the Azores, Hergesell Meteorod had found northwest winds at different heights above the northwest trades or surface winds, and had in consequence been led to question the existence of the ordinary southwest anti-trades. The observations on the *Otaria* showed that the anti-trades in general exist above the trades and that the presence of northwest winds is not incompatible with that of the anti-trade. The normal stratification of the atmosphere was found to be as follows: The lower stratum, having a drift from northeast, shows a rapid decrease of temperature in the first 500 to 600 metres. Above this zone there is an inversion of temperature in which the wind velocity diminishes. Above the trade-wind there is generally a current from northwest; then, at about 2500 metres near the Tropic of Cancer, and at 3000 or 3500 metres north of the tropic, there occur winds with a southerly component changing from southeast near 15° N. to west-southwest near 25° N.

The isothermal layer or "stratosphere," as it has been called by its discoverer, Teisserenc de Bort, was also investigated. In latitude 25° N. it was reached at 14 kilometres. North of this latitude it was met with at altitudes varying from 12 to 14 kilometres, while nearer the equator it was not found, although in many cases the ballons-sondes reached a height of 15 kilometres. It would seem therefore as though the stratosphere attained its greatest altitude over the equator. Further evidence of this was obtained by the expedition organized by the Royal Prussian Aëronautical Observatory, which made a series of kite and balloon observations of the upper air on Lake Victoria. A registering balloon, which reached a height of 19.8 kilometres, recorded a temperature at that altitude of -84°C. , a lower temperature than has ever been found at equal or even greater altitudes over Europe and the United States.

THE ACTION-CENTRES OF THE ATMOSPHERE. In 1881 Teisserenc de Bort found that the different types of winter in Europe and, to a large extent, the general characters of the seasons, were dependent on the variations in the intensity and position of certain areas of high and low pressure, which he called "action-centres." Thus, a continuation of low pressures to the south of Iceland determines a mild winter in northwest Europe, while a development of "highs" in Asia and also in the neighborhood of the Azores is followed by severe winters. Other observers have since shown that atmospheric disturbances at one time in one region are almost invariably followed by disturbances of the opposite nature in some other region not necessarily near the former. Lockyer,

for example, has established the existence of a barometric see-saw of world-wide extent having a period of 3.8 years. Connected with this cycle, it is found that the pressure variations in Argentina are inverse to those centred round Bombay. The South American type of variation is closely associated with the variations in the United States, Central America, and Northwest Africa; whilst the Indian type is connected with those occurring in Europe, Northeast and South Africa, Arabia, and Australia. Hildebrandsson, who has been working in this field for more than a decade, was the first to call attention to the fact that these meteorologically related areas are really subject to a single general law. At the same time, while many examples of the application of the law have been detected, its complete elucidation will only be reached with the gradual extension of meteorological observatories to the unsettled regions of the earth, and particularly to those islands of the ocean which lie from the beaten track, for it is in mid-ocean that many of the important action-centres are situated. It seems probable that the cause of the variations of the intensity of the action-centres and of the different types of seasons of the northern hemisphere is to be sought in the thermal state of the Arctic Ocean. Guided by this supposition, Hildebrandsson examined the meteorological elements for certain regions lying in the northern hemisphere between the eastern shores of North America and Siberia, and found strong evidence in favor of it. For example, the summer temperature at the North Cape is opposed to that of the following spring in Iceland. In fact, a high temperature over the Arctic Ocean in summer should cause a greater melt of ice and in consequence the polar current reaching Iceland in the following spring should bring with it a greater quantity of ice and cold water than usual. The determination of compensating or analogous relations of this character between different regions should render possible more accurate long-distance forecasts, of a general nature.

METHODIST EPISCOPAL CHURCH. A Protestant religious denomination, which had its beginning from the great movement under the leadership of John Wesley, which was carried on in the middle of the 18th century. The first conference of the church in the United States was held in 1773 and an organization was formed in 1875. The Episcopal College, composed of the bishops of the church, consisted in 1909 of 31 members, 24 general superintendents and 7 missionary bishops. The church lost by death during the year one of its most notable officers, Bishop Hartzell (q. v.), who died December 5, 1909. The total membership of the denomination on December 31, 1909, was 3,442,631. Of these 3,113,935 were full members, and 328,696 were probationers. The increase during the year was 63,047 or 1.865 per cent. This was considerably less than the gain for 1908, which was 72,309 or 2.186 per cent. The total number of ministers at the end of 1909 was 19,567. Of these 14,039 were effective, 1853 were on trial, 884 were supernumerary and 2821 were superannuated. The local preachers numbered 15,030. There were 30,075 churches in the denomination at the end of the year, with 13,577 parsonages. The value of the churches was \$174,039,922 and the value of the parsonages, \$29,809,909. Domestic and foreign missions are

carried on in nearly all the States of the Union and in nearly all the countries and divisions of the world. The total official benevolences of the church in 1909 amounted to \$15,178,015. Of this sum, \$1,235,970 was for the support of foreign missions, \$872,106 for home missions and church extension, \$125,095 for the Board of Education, \$55,679 for the Board of Sunday Schools, \$128,880 for the Freedmen's Aid Society and \$38,497 for the American Bible Society. The foreign membership of the church in 1909 was 318,011, of which 158,378 were full members and 162,465 were probationers. Foreign missions are carried on by the Board of Foreign Missions of the Methodist Episcopal Church, which was organized on January 1, 1907, as the successor of what was known from 1819 to 1906 as the Missionary Society of the Methodist Episcopal Church. Pursuant to the action of the General Conference of 1904, the Board of Foreign Missions undertook the administration of affairs of this body. During the eighty-nine years of its existence the receipts of the Missionary Society amounted in the aggregate to \$46,485,957. Missions in Protestant lands are carried on in Norway, Sweden, Denmark, Finland, Germany and Switzerland. The missions in Roman Catholic lands are carried on in South America, Italy, Mexico, France, the Philippines and Madeira. In these countries there are 168 foreign missionaries, 782 ordained and unordained native preachers and 24,080 full members. The missions in Greek Church lands are carried on in Bulgaria, with a small mission in St. Petersburg, Russia. Missions in non-Christian lands are in Africa, China, Korea, India and Malaysia. In these countries the church has 709 foreign missionaries, 2339 native preachers, 73,844 full members and 125,918 probationers. In Japan there are 82 Methodist Episcopal foreign missionaries. A Japan Methodist Church was organized in 1907. Domestic missions are in the hands of the Board of Home Missions and Church Extension, incorporated in 1865. Its charter was amended and the present name adopted in 1906.

The Board of Education has general charge of the educational work of the church. Its two specific aims are the aid of educational institutions and the aid of worthy young people who are seeking an education. For this purpose the Board has received since its beginning about \$1,671,000 and has aided 16,609 persons. Under the direction of the church are 26 theological seminaries, 54 colleges and universities, 46 classical seminaries and five institutions exclusively for women. The work among colored people of the South is carried on by the Freedmen's Aid Society. It maintains 23 schools and colleges located in as many centres of the Southern States. The enrollment in all departments of these colleges in 1909 was 7,237. Special emphasis is being laid on the normal, industrial and professional courses, as the work of these departments is deemed the most needful under present conditions. Work is carried on among the immigrants to the United States by the Women's Home Missionary Society, which maintains several immigrant homes in New York City and elsewhere. Publications of the church are carried on by the Methodist Book Concern and by the Western Book Concern of the West. Among the official periodicals are the *Methodist Review*, bi-monthly, *World-Wide Missions*,

monthly, and the *Christian Advocate*, weekly. Periodicals are also issued in German.

In 1909 was celebrated the African Diamond Jubilee of Missions. This was the seventy-fifth anniversary of the sending to Africa of the first Methodist foreign missionary. A movement was undertaken to raise \$300,000 in special gifts as a thank offering for the augmenting of foreign missions. The campaign was opened at the Metropolitan Methodist Episcopal Church on January 18, 1909, with President Roosevelt as the principal speaker. His address was one of great significance. Field days and rallies were held in a number of the larger cities of the country. The Field Day in New York, December 13, 1909, was the final meeting. President Taft was the chief speaker and Bishop Hartzell reported the amount received up to date.

METHODIST EPISCOPAL CHURCH, SOUTH. A Protestant religious denomination, which was founded in 1845 as a result of the separation of a body of the members of the Methodist Episcopal Church who differed on the question of slavery. The church had, in 1909, 1,739,614 communicants, 15,727 churches and 7197 ministers. The Epworth Leagues numbered 3951, an increase of 288 over the previous year, and the members numbered 138,542, an increase of 10,618. The number of conferences is 47. The receipts for foreign missions were \$375,909 and for domestic missions \$286,838. There was received for church extension \$149,116. The denomination has 13,844 church buildings, valued at \$37,864,452, and 4830 parsonages. The Episcopal Board of the church consists of eight bishops. Missions are maintained in Japan, Korea and China and other foreign countries. The denomination maintains one university, 15 colleges and 106 unclassified institutions. The endowment of these amounts to \$4,394,782. Among the publications are the *Methodist Review*, Nashville, Tenn., the *Christian Advocate*, Nashville, Tenn., and a number of other denominational publications issued from the General Publishing House which is at Nashville. The denomination has shown a steady increase in growth in recent years.

METHODIST PROTESTANT CHURCH. A Protestant religious denomination, founded in 1828 by members of the Methodist Episcopal Church who withdrew from that body on account of the refusal of the General Conference in 1824 to admit laymen. The denomination assumed its present name in 1830. There were in 1909, 188,806 communicants, 2390 churches and 1362 ministers. The denomination is strongest in the States of Maryland, North Carolina, West Virginia and Pennsylvania, although it is represented in nearly all the Southern and Central Western States of the Union. Efforts have been made in recent years to bring about a union between the Congregational Church and the United Brethren and the Methodist Protestant Church, but these have been in abeyance for several years as the result of the action of the National Council of Congregational Churches in 1907 in voting to defer action. The denomination carries on foreign and domestic missions and maintains publishing houses in Baltimore and Pittsburg. Among the publications of the denomination are the *Methodist Protestant*, the *Methodist Recorder*, and a number of Sunday school and other periodicals.

METHODISTS, COLORED. See COLORED METHODISTS.

METROPOLITAN MUSEUM OF ART. An institution incorporated under the laws of the State of New York in 1870 for the purpose of establishing a museum and library of art, and to encourage the application of the arts and manufactures to practical life. The Museum has its collections in a handsome building in Central Park which is owned by the city and is leased to a corporation. Additions to this building were completed in 1908 and others are under construction. The total attendance at the Museum in 1909 was 937,833 as compared with an attendance of 817,000 in 1908, which in turn greatly exceeded the attendance of 1907. The most notable event in the history of the Museum in 1909 was the conception and successful carrying out of the exhibition of Dutch and American art during and following the Hudson-Fulton celebration. This exhibition included the most extensive collection of Dutch masters hitherto exhibited in this country. The exhibit of early American furniture and other household furnishings was also notable. These exhibitions were attended by many thousands of people. The Museum maintained for the third year an expedition in Egypt and excavations were continued on its concession at the Pyramid of Lisht and at the oasis of Kharga. (See ARCHAEOLOGY.) Four men prominent in the support of the Museum died during the year. These were: John Crosby Brown, Treasurer of the Museum, and Rutherford Stuyvesant, Charles Follen McKim and William M. Laffan, Trustees. Many important acquisitions were received by purchase and by gifts during the year. Among the important benefactions received were \$1,500,000 from the residuary estate of F. C. Hewitt, and \$1,500,000 as a portion of the bequest of John Stewart Kennedy. Sir Caspar Purdon Clark, the Director, was absent from May 1 on account of ill health. The president of the Board of Trustees is J. Pierpont Morgan.

MEXICO. A North American republic, lying between the United States and Central America. The capital is the City of Mexico.

AREA AND POPULATION. The area (including islands of 1420 square miles) of the twenty-seven states, three territories, and Federal District comprising the republic is stated at 767,258 square miles. The population, according to the census of 1900, was 13,607,259, of whom 19 per cent. were white, 38 per cent. Indian, and 43 per cent. mixed. Foreigners numbered 57,588, including 16,278 Spaniards and 15,266 Americans. Of the total population, 12,380,245 were returned as Roman Catholics and 51,795 as Protestants. The largest cities, with population in 1900, are: Mexico, 344,721; Guadalajara, 101,208; Puebla, 93,152; León, 63,263; Monterey, 62,266; San Luis Potosí, 61,019; Mérida, 43,630; Guanajuato, 41,486. The promotion of immigration and colonization is receiving the serious consideration of the government. A new immigration law became operative March 1, 1909. Exact figures for recent immigration are not available. The arrivals in the country, including not only immigrants but all others, from July to December, 1908, are reported as numbering 24,500, of whom Americans numbered over 11,000.

Primary instruction is free and nominally compulsory. Secondary schools are also provided by the Federal government and the states. Besides public schools there are some 2300 pri-

vate, clerical, and association schools. A considerable number of institutions provide higher and professional instruction. Of late public and official interest in education has noticeably advanced; the school system has been developed, and the attendance has greatly increased.

INDUSTRIES. Up to the present time Mexican mines have constituted the principal source of national wealth. The leading metals exploited are silver, gold, and copper. The annual increase in the output of gold is a matter of great satisfaction. Coal production is increasing, and the petroleum fields in the northwestern part of the republic are being developed. Other minerals occurring in the country and more or less worked are the ores of lead, zinc, iron, and antimony, and graphite, salt, asphalt, and opals.

In proportion to the capabilities of the country, the agricultural production is small. The annual value of cereal crops, fruits, and other products of the soil, and of cattle marketed, is about \$200,000,000. Of this amount the chief items, representing a fair average product, are: Corn, \$50,000,000; cotton, \$17,000,000; henequen, \$16,000,000; wheat, \$13,000,000; sugar and molasses, \$13,000,000; spirits, \$10,000,000; coffee, \$8,000,000; beans, \$6,000,000; and woods, \$5,000,000. In the fiscal year 1908 the production of sugar amounted to 123,285 metric tons, and of molasses, 70,948 metric tons; the estimated sugar output for 1909 was 125,000 metric tons. The latter figure shows an increase of 50,000 tons over the output in 1900. The average coffee crop has been about 88,000,000 pounds, but that of 1906 was estimated at only 45,000,000, and 1908 at 42,000,000; but the estimated production for 1909 was 81,000,000 pounds. The cotton produced in 1907 amounted to about 80,000 bales. Cotton culture is a promising industry and will be greatly developed if the present plans for irrigating the Nazas Valley, Coahuila, by means of a great dam across the river at San Fernandez, are carried into effect. Increased interest is being constantly manifested in the utilization of water courses subject to Federal jurisdiction, and an Institution of Loans for Irrigation Works and the Encouragement of Agriculture has been established. The culture of henequen in Yucatan provides Mexico with one of its chief exports. Other products of considerable importance are tobacco, cacao, and rubber. The guayula plant, formerly considered worthless, is proving valuable as a rubber producer. In 1909 it was reported that the recent discovery of a valuable wax yielded by the candelilla plant would probably result in an important industry. Stock-raising is developing both through an improvement in the care taken of animals and in the importation of pure-bred stock.

Mexico's leading manufacturing industries are those of cotton textiles, steel, tobacco goods, sugar, and spirits. In 1908 the number of spindles in the cotton factories was estimated at 730,000 and the consumption at 175,000 bales. The reported production of tobacco manufactures in 1907 included 525,259,735 packets of cigarettes, 134,055,669 cigars, 164,308 kilos of smoking tobacco, and 27,800 kilos of snuff. In 1909 plans were completed for the erection of a new steel plant and a new chemical factory in the City of Mexico.

FOREIGN COMMERCE. For fiscal years ending

June 30, the values of imports and exports are stated as follows, in Mexican dollars:

	1907	1908	1909
Imports	232,229,579	221,757,464	156,504,447
Exports	248,018,010	242,740,201	231,101,796

The import classifications for the fiscal years 1908 and 1909 showed the following valuations, in Mexican dollars:

Class	1908	1909
Mineral products	69,651,258	44,584,423
Vegetable products	30,668,277	29,366,504
Machinery and appliances.....	28,648,024	20,121,500
Textiles and manufactures.....	30,639,230	15,880,423
Animal products	17,265,463	12,568,348
Chemical products, etc.....	10,349,051	9,656,733
Wines, liquors, etc.....	7,163,891	5,566,356
Paper and manufactures.....	6,134,038	4,648,303
Vehicles	7,410,727	4,313,297
Arms and ammunition.....	3,650,559	2,532,100
Miscellaneous	10,176,947	7,267,425

Classified export values for the fiscal years 1908 and 1909 were:

Class	1908	1909
Mineral products	158,409,327	144,273,543
Vegetable products	70,204,937	67,930,590
Animal products	9,659,593	13,939,350
Manufactures	3,009,423	2,551,207
Miscellaneous	1,456,921	2,407,105

In the fiscal year 1908, silver exports were valued at 73,841,593 dollars, against 93,012,766 in the preceding year; all other mineral products, excepting copper and plumbago, showed satisfactory gains, the gold export amounting to 39,210,080 dollars, against 31,921,299 dollars in 1908, and lead 6,396,986 dollars, as compared with 5,344,541. Henequen exports declined from 27,019,340 dollars in 1908 to 23,882,721 dollars in 1909. Coffee advanced from 10,592,486 dollars to 12,544,327 dollars, and guayula from 1,232,839 dollars to 4,541,071. Exports of tobacco declined from 2,818,133 dollars to 1,707,299 dollars. Hides exported in the fiscal year 1908 were valued at 6,787,453 dollars; in 1909, 9,016,477 dollars; exports of cattle in the two years amounted to 2,227,696 dollars and 3,980,459 dollars respectively.

In the fiscal year 1909 imports from and exports to the United States were valued at 91,974,000 dollars and 172,946,000 dollars respectively; Great Britain, 19,781,000 and 24,132,000; France, 12,359,000 and 11,009,000; Germany, 17,136,000 and 12,859,000.

COMMUNICATIONS. According to the President's message, the railways at the end of 1908 had a total length of 14,857 miles, of which 11,850 miles were controlled by the Federal government. The reported length on September 16, 1909, was 15,100 miles. New lines and extensions are under construction, and others projected. In December, 1908, the new line from Guadalajara to Colima was opened to traffic. At Colima the line connects with the one to Manzanillo and thus establishes a second rail route between the Pacific and the Gulf of Mexico (the other transcontinental railway is the Tehuantepec). A merger (the National Railways of Mexico) embracing 7012 miles of government-controlled railways (the Mexican Central and the Mexican National) became oper-

ative February 1, 1909. Later in the year the new management announced its intention of beginning on January 1, 1910, an annual expenditure of about \$6,000,000 (gold) on general repairs, especially the installation of heavier rails, on additional rolling stock, etc. In the fall of 1909, it was reported that construction work through the state of Sinaloa of the Southern Pacific Railroad was being actively pushed and that Rosa Maroda, 115 miles south of Mazatlan, had been reached; it was expected that the line would be completed in 1912. On January 7, 1909, a contract was made for a line from Durango to Mazatlan. At this port harbor improvements are projected to cost \$15,000,000 (gold). A line is projected from Monclova (Coahuila) to the town of Chihuahua. In the fiscal year 1907, Mexican railways carried 10,000,031 passengers, and in 1908, 10,747,128; the gross earnings from passenger traffic in the two years were 15,521,132 dollars (Mexican) and 16,436,498 dollars, respectively. Freight traffic in the fiscal year 1907 amounted to 9,124,040 tons, and in 1908, 10,042,144 tons; gross earnings, 52,863,540 dollars and 57,933,153 dollars respectively.

Most of the telegraph lines are owned by the Federal government. The length of government lines in 1909 was stated at 40,640 miles; the number of post-offices 2946.

FINANCE, ETC. Ordinary revenue and expenditure for fiscal years ending June 30 have been as follows, in Mexican dollars (worth 49.8 cents):

	1907	1908	1909
Revenue.....	114,286,122	111,771,968	.....
Expenditure....	85,076,641	93,177,441	104,040,318

In the fiscal year 1908 the extraordinary expenditure was 11,701,228 dollars. The estimated revenue and expenditure for the fiscal year 1910 were 97,261,000 dollars and 96,935,402 respectively. Revenue accrues mainly from import duties, stamps, excise, etc., and direct taxes. The largest expenditures are for the departments of Finance, War and Marine, and Public Works. On June 30, 1908, the public debt stood at 441,564,600 dollars.

In 1908 there were thirty-four banks, representing a combined capital of 176,000,000 dollars. Thirty were banks of issue, and, at the end of June, their assets and liabilities balanced at 613,311,800 dollars, as compared with 602,860,400 dollars the year previous.

NAVY. The navy includes one unprotected cruiser, of 1220 tons, and nine gunboats. Six cruisers are projected.

ARMY. Service is by voluntary enlistment supplemented by conscription. The active army on a peace footing consists of twenty-eight battalions of infantry, fourteen regiments of cavalry, eight field batteries, four mountain batteries, four batteries horse artillery, one machine gun company, one squadron of sixteen quick-firing guns of small calibre, six companies of engineers, two transport companies, and one company of hospital service. The army was being increased in 1909 and consisted on a peace footing of 3500 officers and 31,000 men. The new organization provided for expanding this force on mobilization to 7000 officers and 186,000 men, which could be increased even to

250,000. During the year a new automatic rifle was adopted. See **MILITARY PROGRESS.**

GOVERNMENT. Mexico is one of the five American republics having the federal form of representative government, the others being the United States, Argentina, Brazil, and Venezuela. The executive authority is vested in a president, who is elected by indirect vote for a term of six years and is assisted by a cabinet of eight ministers. The legislative power devolves upon a congress of two houses, the Senate (fifty-six members, elected for four years) and the Chamber of Deputies (one for every 40,000 inhabitants, elected for two years). The President in 1909 was Gen. Porfirio Diaz, whose seventh term will expire November 30, 1910. The Vice-President was Ramón Corral. The states have their own elected governors and legislatures.

HISTORY. On January 4 the Yaqui Indians signed a treaty of peace. Two serious disasters occurred during the year. The first was a series of earthquake shocks, which began on July 30 and were most severe on the following day. The town of Acapulco was virtually destroyed, leaving hardly a single building fit for occupancy. Great damage was done to the water front, the water after receding having risen in a great flood. The shocks were felt in many other places in Mexico, and though no trustworthy figures of the loss of life could be had, hundreds were said to have been killed. In Mexico City several people were killed. An even greater disaster occurred at the close of August in the neighborhood of Monterey, where floods destroyed the town of Soto La Marina with a population of 6000 and other places in the vicinity. In the valley of the Santa Catarina, it was reported that 1500 people had been killed and 15,000 rendered homeless. The loss of life at Monterey was said to be 1200. The total loss of life was afterward placed as high as 10,000. Mr. Hanna, the American Consul-General in Mexico City, appealed for aid for the victims. The region that suffered from the floods comprised nearly all the territory between Monterey, Matamoras and Vittoria. Hundreds of families were left destitute and were reported to be starving in the hills of Nueva León and Taumalipas. The Red Cross Society at Washington appealed to the American public for aid. On October 16 President Taft reached El Paso, Texas, in the course of his American journey, and a meeting which had been arranged between him and President Diaz occurred on a strip of territory known as El Chamizal, to which the conflicting claims of the United States and Mexico have not yet been settled. After a reception on the American side of the line by President Taft, the latter paid a return visit to President Diaz on the Mexican side.

MEYER, GEORGE VON LEMBERGE. An American public official, Secretary of the Navy in President Taft's administration. He was born in Boston in 1858, and graduated from Harvard College in 1879. For the greater part of his life he was engaged in business, but took an active interest in politics. He was a member of the Boston Common Council in 1889-90; member of the Board of Aldermen in 1891; member of the Massachusetts Legislature, 1892-6 (Speaker of the House, 1894-6) and was elected Massachusetts member of the Republican National Committee in 1899. From 1900 to 1905

he was American Ambassador to Italy, and from 1905 to January 26, 1907, was Ambassador to Russia. In the latter year he was recalled in order to become a member of President Roosevelt's cabinet as Postmaster-General. With the exception of Secretary Wilson he was the only member of President Roosevelt's cabinet to be retained by President Taft.

MICHAEL NIKOLAYEVITCH. A Grand Duke of Russia, died December 18, 1909. He was born in 1832, the fourth son of the Emperor Nicholas I. He received the ordinary education of Russian Grand Dukes, in which military training formed an important part. At the age of fourteen he was commissioned sub-lieutenant, and six years afterwards was appointed brigadier-general of the Horse Artillery of the Corps. He took keen interest in the technical branches of his profession and was a member of many important military commissions. In 1857 he took an active part in the researches regarding the best means of efficiently protecting the coasts of the Baltic and the Black Sea, and in 1860 the whole system of military education was placed under his direction. In 1863 he was appointed Viceroy and Commander-in-Chief of the Caucasus, and in this position he remained eighteen years, during which time he had abundant opportunities for displaying his military capacities and his talents for civil administration. He succeeded in pacifying the province and it remained in a peaceful condition until his retirement in 1881. On the accession of Alexander III., who succeeded to the throne in 1881 on the assassination of his father, Alexander II., the Grand Duke was appointed president of the Council of the Empire, and he remained in this important position until several years ago, when declining health compelled him to resign from administrative activity. From that time he led a quiet, retired life on the Riviera. He married, in 1857, the Princess Cecilia of Baden. She died in 1891.

MICHEL, FRANÇOIS EMILE. A French artist and writer on art, died May 24, 1909. He was born in 1828 at Metz and was a pupil of Migette and Maréchal, the glass painter, and began to exhibit his paintings in 1853. His best known works include "Une gardeuse d'oies" (1853) in the Nantes Museum; "Nuit d'été" (1872) in the Nancy Museum; and "Semaines d'automne" (1873) and "La dune pres de Haarlem" (1885), both in the Luxembourg. He contributed many articles on subjects related to art to the *Gazette des Beaux-Arts* and other periodicals. Among his published works are: *Le musée de Cologne* (1883); *Les musées d'Allemagne* (1885); *Rembrandt* (1886, Eng. trans., 1904); *Jacob van Ruysdael et les paysagistes de l'école de Haarlem* (1890). In 1892 he was elected a member of the Institute.

MICHIGAN. One of the North Central Division of the United States. Its total area is 57,980 square miles. Its population in 1909, according to the Federal estimate made in that year, was 2,666,308.

MINERAL PRODUCTION. Michigan is one of the most important States in the production of minerals. Its iron and copper mines rank among the most productive in the country. In the production of iron it was surpassed only by Minnesota. There were produced in 1908 8,839,199

long tons of iron ore, as compared with the product of 1907 of 11,830,342 tons. The chief ranges from which this iron is produced are the Marquette, the Menominee and the Gogebic, the two last of which, however, are partly in Wisconsin. The Marquette range is the oldest of the Lake Superior ranges. The State produces also large quantities of pig iron. In the production of copper it ranks third, being surpassed only by Arizona and Montana. The production of 1908 showed a slight falling off from that of 1907. There were produced in the former year 222,289,584 pounds as compared with 219,131,583 pounds in 1907. The total production of coal in the State in 1908 was 1,835,019 tons, with a spot value of \$3,322,904. This is a decrease of 300,839 short tons in quantity and \$337,929 in value from the production of 1907. Notwithstanding this decrease the tonnage imported in 1908 was larger than in any previous year in the history of the State except 1907. The coal trade in the State is largely dependent on the demand of manufacturing cities along the lake front, and as the industries of these cities were seriously influenced by the panic of 1907, their consumption of coal was decreased. The number of men employed in the mines of the State increased from 3982 in 1907 to 4247 in 1908. The operations during 1908 were almost entirely free from labor troubles, a strike in only one mine having been reported. Salt is produced in large quantities in the State, the production in 1908 being 10,194,279 barrels, valued at \$2,458,303. The State holds first rank in the salt production. In 1908 it outranked New York both in quantity and value of output. The State ranks with the most important in the production of Portland cement. The production in 1908 was 2,892,576 barrels, valued at \$2,556,216. This was a falling off from the production of 1907, which was 3,572,668 barrels, valued at \$4,384,731. The value of the clay products produced in 1908 was \$1,728,790 as compared with a value for the production of 1907 of \$1,786,190. Among the other minerals produced are graphite, asbestos, stone and gypsum. The total value of the mineral products of the State in 1908 was \$45,730,798 as compared with a value of the product in 1907 of \$70,242,692.

The production of coal in 1909 was somewhat less than in 1908, largely as a result of the competition of coals from other States. For this reason a number of mines were reported as having closed down during the year. There was a plentiful supply of labor in 1909 and no strikes or suspensions interfered with mining operations.

The production of copper in 1909 exceeded that of 1908.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 69,950,000 bushels, valued at \$42,670,000, from 1,976,000 acres; winter wheat, 14,570,000 bushels, valued at \$16,318,000, from 775,000 acres; oats, 43,310,000 bushels, valued at \$17,757,000, from 1,420,000 acres; barley, 1,655,000 bushels, valued at \$1,010,000, from 67,000 acres; rye, 5,425,000 bushels, valued at \$3,743,000, from 350,000 acres; buckwheat, 829,000 bushels, valued at \$547,000, from 58,000 acres; potatoes, 36,540,000 bushels, valued at \$12,789,000, from 348,000

acres; hay, 3,403,000 tons, valued at \$38,794,000, from 2,618,000 acres. In the production of rye Michigan stands second among the States, being surpassed only by Pennsylvania. It is second also in the production of potatoes, New York being the only State which surpassed it. The oat crop was slightly larger than that of 1908, when it was 41,847,000 bushels. The acreage, however, slightly decreased in 1909. The potato crop of 1909 was largely in excess of that of 1908, which was 23,400,000 bushels, while the acreage increased from 325,000 to 348,000. Michigan is among the first of the States in the acreage and production of sugar beets.

In the production of fruit and vegetables the State also ranks among the first. The number of farm animals on January 1, 1910, was as follows: Horses, 746,000; mules, 4000; dairy cows, 936,000; other cattle, 963,000; sheep, 2,151,000; swine, 1,159,000. All classes except swine show an increase since 1900. The wool clipped in 1909 was estimated at 11,416,800 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$1,473,060. Of these the most important was herring, of which 14,787,400 pounds, valued at \$303,580, were taken. Next in order of importance was trout, of which there were taken 6,798,000 pounds, valued at \$424,080. Whitefish to the amount of 4,768,500 pounds, valued at \$330,230, were taken. Carp, 2,459,000 pounds, valued at \$55,460; suckers, 4,467,300 pounds, valued at \$117,210; and German carp, 2,459,000, valued at \$55,460, were among the other important fishes taken. There were in addition considerable quantities of catfish, dogfish, rock bass, sturgeons, sunfish, and mussel shells taken. The fishermen engaged in the fisheries of the State numbered 1608 and there were 1774 wage-earning fishermen employed. The total number of vessels engaged in the fisheries was 110, and they were valued at \$261,424.

EDUCATION. According to the report of the Superintendent of Schools there were enrolled in the secondary schools of the State in 1909 549,108 pupils. There were 2433 men teachers and 14,974 women teachers. The average salary received by the men teachers was \$71.52 and by the women, \$48.58. The total expenditure for secondary schools during the year was \$13,223,773.

FINANCE. According to the report of the State Treasurer the balance at the end of the fiscal year 1908 was \$3,009,748. The income for the fiscal year 1909 was \$10,468,585, while the expenditures amounted to \$11,864,365, leaving a balance at the close of the fiscal year 1909 of \$1,613,967. The chief sources of revenue are from railway and State taxes. The chief disbursements were for primary schools and for State institutions. The State has no bonded debt.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State with their population on June 30, 1908, were as follows: Michigan Asylum for the Insane at Kalamazoo, 1848; Eastern Michigan Asylum at Pontiac, 1286; Northern Michigan Asylum, Traverse City, 1337; Upper Peninsula Hospital for the Insane at Newberry, 675; State Asylum, Ionia, 374; the Psychopathic Hospital at Ann Arbor, 39; Home for Feeble Minded and Epilep-

tic at Lapeer, 819; State Public School at Coldwater, 161; School for the Deaf at Flint, 316; School for the Blind at Lansing, 117; Employment Institution for the Blind at Saginaw, 31; Industrial School for Girls at Adrian, 353; Industrial School for Boys at Lansing, 736; State Prison at Jackson, 759; Michigan Reformatory at Ionia, 548; The Upper Peninsula Prison, at Marquette, 318; Soldiers' Home at Grand Rapids, 1156; State Sanatorium at Howell, 4. In 1907 an important juvenile court law was enacted which has had beneficial results.

POLITICS AND GOVERNMENT. On January 6, the State Legislature convened in triennial session and continued until May. Its work included a revision of the primary election law. The scope of the law was broadened so as to provide that all nominations shall be made on the same day, which is the first Monday in September. This means candidates for governor, lieutenant-governor, representatives in Congress and in the legislature, and for county offices. As a concession to one element the law authorizes State conventions to be held to nominate candidates for other State officers than governor and lieutenant-governor. Party candidates for United States Senator shall also be nominated at the primaries.

A new State liquor law was enacted imposing far more restrictions on the saloon business than the old law imposed. The general tax law was amended so as to require telegraph, telephone, and express companies to pay ad valorem taxes instead of a specific tax on their gross earnings. Railroads and other corporations are required to pay ad valorem taxes. A commission to devise and put into operation a comprehensive system of reforestation was created. The railroad commission law was enlarged so that the commissioners now have authority to regulate freight rates.

On January 27, former State Treasurer Frank P. Glazier was convicted of misappropriating \$685,000 of State funds, which he used to bolster up the Chelsea Savings Bank, of which he was president. His appeal was argued in the Supreme Court, but up to the end of the year a decision had not been handed down. On January 31, Warden Armstrong of the Jackson State Prison was arrested on a charge of accepting a bribe from a prison contractor. The contractor set a trap and passed him marked bills. A grand jury was called and the warden, the deputy warden and seventeen others were indicted. None have yet been tried.

At the election on April 5, nineteen counties voted to be dry, and some 600 saloons and ten breweries were put out of business. Eleven other counties had previously gone dry, so now thirty of the eighty-three counties of the State are dry. The Republicans elected their candidates for the supreme bench, for university regents, and for members of the Agricultural College Board by 75,000 majority. The only Detroit officials elected were members of the Board of Education, and for these about as many women voted as men. School board members are the only officers that Michigan women can vote for, although the revised State constitution of 1907 provides that no public utility franchise shall be granted, or no public utility properties be acquired by a new municipality except by an affirmative vote of three-fifths of the electors, and upon such propositions women

taxpayers, having the qualification of male electors are entitled to vote.

OTHER EVENTS. The steamer *Assiniboia* on June 8 crashed into a gate of the Canadian locks at Sault Ste. Marie, and partially wrecked the locks. Adrian College during the week of June 15 celebrated its golden jubilee. June 22 the steamer *Theo* was rammed by the *Livingstone* in a fog on Thunder Bay, Lake Huron, and sank. The First National Bank of Ironwood failed on July 2, for \$600,000. Its president, H. F. Jahn, later committed suicide. July 12 the steamer *J. B. Cowle* was sunk by a collision with the *Isaac M. Scott* on Lake Superior and eleven of her crew drowned. On August 27, eighteen companies, organized to develop water power in Michigan, filed articles of incorporation with the Secretary of State, their joint capital being \$3,200,000. On the bitter cold night of December 9 a \$750,000 fire occurred at Kalamazoo. The Burdick House was one of the buildings burned and many guests barely escaped with their lives. On December 24 a merger was reported of nearly all of the larger developed water power properties in Michigan.

OFFICERS: Governor, Fred M. Warner; Lieutenant-Governor, P. H. Kelley; Secretary of State, Frederick C. Martindale; Treasurer, Al E. Sleeper; Auditor, Oramell B. Fuller; Attorney-General, John E. Bird; Adjutant-General, William T. McGurrin; Superintendent of Education, Luther L. Wright; Commissioner of Insurance, James V. Barry; Commissioner of State Land Office, Huntley Russell—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Charles A. Blair, Rep.; Justices, Claudius B. Grant, Rep.; Joseph B. Moore, Rep.; Aaron V. McAlway, Rep.; R. M. Montgomery, Rep.; Frank A. Hooker, Rep.; Flavius L. Brooke, Rep.; Russell C. Ostrander, Rep.; Clerk, Charles C. Hopkins, Rep.

The State Legislature of 1909 was composed of thirty-two Republicans in the Senate, and ninety-eight Republicans and two Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

MICHIGAN, UNIVERSITY OF. An institution of higher learning at Ann Arbor, Mich., founded in 1837. The attendance in 1908-9 was 5223, with 425 instructors. The attendance in the autumn of 1909 was about 5400. The number of volumes in the library was 258,609. Beginning with 1909 the entrance requirements in the department of medicine and surgery were raised so that at least two years of college work are required on entrance. In the summer session two new departures included the enlarged facilities for the summer engineering work on a tract of some 1500 acres on the shores of Douglas Lake in Cheboygan county. At this camp was established for the first time a biological station at which a number of students worked through the summer. A new course in railway administration has been established in the department of political economy. There is in course of construction an addition to the principal engineering building at a cost of about \$100,000, and a new laboratory of chemistry to cost about \$275,000. The alumni memorial building, largely the gift of the alumni, will be ready for occupancy in 1910. The cost of this has been somewhat over \$200,000. Among the additions to the faculty of 1909

were George Luther Clark, professor of law; Carl Eugen Guthe, professor of physics; Cary Leroy Hill, assistant professor of forestry; Charles Vernon Tower, acting assistant professor of philosophy, and Philip George Bartelme, director of outdoor athletics. On October 1, President James B. Angell retired after thirty-eight years of service, with the title of President Emeritus. Dean Harry B. Hutchins, LL. D., of the department of law, is Acting President for the year 1909-10.

MILITARY PROGRESS. The unrest and uncertainty in the Balkan region prevalent in 1909 as in the year previous had the effect of hastening the completion of the rearmaments of the nations directly interested, particularly as concerned their artillery, and led to the accumulation of supplies of ammunition. This feeling of uncertainty spread somewhat to the west of Europe and was manifested more particularly in the rearmament, reorganization, and increase of the artillery, though problems of manœuvres, material and transport were under discussion and practical experiment. In Morocco the Spanish army had serious work in their operations against the tribesmen about Melilla, and opportunity was given to try organization and weapons under service conditions. The lessons of the Russo-Japanese war in Manchuria were still being digested and studied and the observations of European officers were reflected in changes of method and equipment adopted or in process of trial.

INFANTRY. With rapid marching as an essential of modern military manœuvres and tactics, more attention was being paid to the soldier's equipment with a view to reducing its weight. This had been done in the German army, where the soldiers perhaps are the most stalwart of any nation, but the heavy packs of the French infantry were most unfavorably commented on in the manœuvres of 1909. In the United States army a new field equipment was under test and in European armies steps were taken to lighten the soldier's burden. More important, perhaps, was the matter of weapons. Mexico adopted a new automatic rifle which fires ten rounds, and was the first nation to provide an automatic weapon for its soldiers. The new rifle resembles the Hotchkiss machine gun in general principle of operation, and has a small hole in the barrel through which passes a portion of the powder gases into a power-cylinder, where there is a piston by whose action the breech is opened, the empty cartridge shell ejected, a fresh cartridge inserted, and the breech closed. Naturally this new rifle fires the pointed bullet, which has become standard practice for modern rifles. It has a small cylindrical portion, but a long, ogival point. They were able to pierce the steel shield of a field gun 5 mm. (.197 inch) at a distance of 100 yards. Other nations claimed to have automatic rifles in greater or less numbers, but there was no unanimity of opinion as to their state of perfection or the conditions under which they were to be used. This latter topic attracted much attention, for the extended use of automatic rifles was regarded as bound to result, and therefore its application must be considered, especially as there would be involved questions of increased ammunition supply.

CAVALRY. The cavalry of the various nations was carefully watched at all the great manœuvres of 1909, as their proper use and sphere is



Photograph by Underwood & Underwood, New York

MAXIM GUN IN ACTION

A detachment of the 3rd Dragoon Guards of the British Army using a machine gun from advantageous cover



Photograph by Edwin Levick, New York

KAISER MANOEUVRES IN GERMANY

The Emperor addressing the generals and staff officers at the close of a day's work

MILITARY PROGRESS

one of the most debated of military questions. The German cavalry most of all retained the old-fashioned ideas of "shock attacks," and their leaders did not employ them for scouting and reconnaissance work as effectively as did the generals of other armies. The German cavalry definitely adopted a new carbine with bayonet, which had been issued to several regiments and was to be provided for all, new "Cavalry Musketry Regulations" having been approved on December 2, 1909. The sword was abolished and in its place the carbine will be carried on the left side. The cavalry were being trained in systematic musketry with but slightly less earnestness than the infantry. The new arm is 1.1 metres (3.61 feet) in length, weighs 3.60 kilograms (7.92 pounds), and is the same calibre, 7.9 mm., as the infantry rifle. Its initial velocity, 870 metres, is only 30 metres less than the infantry rifle. The bayonet is worn at the belt and the carbine is carried on the back when an action is impending. It was desired to give the cavalymen 75, 80, or 90 cartridges, to be carried in cartridge cases either on a bandoleer or attached to the belt. The working of the new arm and its ammunition was carefully observed in the manœuvres. The Japanese cavalry were about to receive a new gun which will come between a field and mountain gun and be available for rapid transport, yet of sufficient power to be useful under many circumstances. The need of such a light gun was demonstrated in the Russo-Japanese war and a satisfactory model having been manufactured at the Osaka arsenal it was to be issued for trial.

ARTILLERY. Throughout Europe and even in Asia and South America rearmament was the prevailing tendency. The German artillery was being matched by France as fast as it was able. England was organizing a large force of territorial artillery, to which were given the 15-pounder gun converted into a quick firer. Schneider field and mountain guns were being supplied to Spain and Portugal to complete their armament, and were also adopted by Greece. Italy was using a Krupp field gun, which was also gaining a foothold in China, and the introduction of a new model field gun into the Japanese army only waited on financial expediency. The increase in the armament of the artillery of the various powers naturally involved problems of reorganization. The six-gun battery was more economical, but less efficient under modern war conditions gun for gun than the four-gun battery organization.

LIGHT FIELD GUNS. An opportunity was afforded to test some of the recent field guns with which the armies of Europe were being provided in the Spanish war at Melilla. A general rearmament had been in progress for several years previously, but no adequate opportunity was given to try out the new weapons under service conditions. The Spanish gun was of the Schneider type with a pneumatic recoil cylinder, which many European artillerymen thought inferior to apparatus where the recoil was absorbed by springs. The hydro-pneumatic recoil was found to render the gun much steadier in action, which results, not only in a more rapid rate of fire, but in more accurate shooting. This is of importance, as by the provision of shields for field guns they had been made safe from shrapnel and required a direct hit to be rendered inoperative. The field guns of Krupp, Schneider

and Ehrhardt, which fire a 14.3-pound projectile with a muzzle velocity of 1640.42 feet per second, remained during the year in their standard form, but experiments were made with their projectiles, especially in the hope of finding one that would be efficient as either a shrapnel or a high explosive shell. Thus in the Ehrhardt shrapnel purchased extensively by the German army the head contained a high explosive charge and the bullets were packed in trinitrotoluol, a new high explosive said to be safe, powerful, and having good keeping qualities, but difficult to detonate. In the Krupp projectile this is secured by a method of progressive detonation, nitroglycerine in a steel cylinder being exploded by the fuse and its explosion in turn detonating the central exploder, which finally detonates the main charge. High explosive shells were being filled with ammonal in which trinitrotoluol entered as an ingredient. A new Armstrong 14.3-pounder gun was brought out in England of remarkable accuracy and showed a mean error in range at 6562 yards, or over 3½ miles, of but 26 feet, or practically a direct hit on a shielded gun at almost every shot. The new Vickers-Maxim gun was also brought out as a piece of extreme accuracy, and a new English field gun from the Coventry Ordnance Works of slightly greater power was shown where a flat trajectory for a 15-pound shell was obtained. In France Colonel De Port's new differential field gun was brought out, a 16-pounder with a muzzle velocity of 1730 foot-seconds and weighing but 2240 pounds. It is so mounted that it can be used at a high elevation, as much as 75 degrees, either as a howitzer in attacking shielded guns or as a balloon gun. The same principle has been used in mountain guns by Krupp and Montlouçon, the former having a hydraulic buffer and the latter a spring arrangement. This last named gun was considered an important advance, as for a 14.3-pounder the weight had been reduced so that with the exception of the shield it could be packed by three mules instead of the usual number, five. Most mountain guns were being made capable of high elevation and for that reason mountain howitzers were not considered at all desirable except in the large calibres where the matter of transportation militated against their use. The development of a suitable quick-firing field howitzer was in progress, Great Britain having adopted an improved weapon from the Coventry Ordnance Works in advance of other European nations who were engaged on this problem.

GUNS FOR AIRSHIPS. With the growing use of airships in military operations it was but natural that means for their defense and for their destruction should be devised. In Europe balloon guns were receiving the attention of ordnance experts and 3-pounders were proposed for the defense of dirigibles, as such a weapon with a reasonable amount of ammunition would not be too heavy and would not produce sufficient concussion to wreck the balloon, which would be safe if there were no gas leakage. For attacking balloons the Krupps devised a special high-angle howitzer which would project a shell leaving a visible smoke trail to show to the gunner its path. During the year three types of this gun were brought out: one, a 9-pounder of 2.6 inches calibre on an ordinary field gun mount, the second a 3-inch 12-pounder mounted on a 50 horse-power motor car, and the third a 4.2-inch gun firing a 40-pound shell, on a naval

mount. While shrapnel could be fired from these guns it was considered preferable to have a special form of grenade, which instead of merely piercing one compartment without disabling the balloon as a whole, would in addition ignite the gas with obviously disastrous effect. The sighting of the gun was effected by a telescope sight of special design and the guns could be elevated to 75 degrees.

MACHINE GUNS. These weapons continued to find increased application in military tactics and manœuvres and as a result they were being extensively added to the equipment of many armies. In the French army an improved type of Hotchkiss gun, known as the Puteaux machine gun, was being provided both for the mobile army and the frontier defenses. The weapon has been improved by strengthening the lock, increasing the length of the radiator for cooling the barrel, and supplanting the familiar pistol grip with two stout handles. The water jacket was done away with both on the ground of being cumbersome and on account of the steam which would render visible the position of the piece. With the different types of automatic rifle already mentioned, the "portable" gun, a machine gun, was attracting much attention in 1909. Weighing only about 16 pounds, it could be carried and fired readily by one man. Such a gun of the Rexer type was adopted by the Russian cavalry, but there were also heavier models weighing about 25 pounds, which were provided with a water jacket. The lighter weapon during firing was to be supported by two props under the muzzle and from it 250 rounds a minute could be fired for a short time until the barrel heated. In the German army the number of machine-gun companies was raised from 17 to 50 by the creation of 33 new units taken from the 12 service companies. The mitrailleuses (six Maxims per company) were drawn by two horses each. This gave the Germans two of these guns to each battalion as compared with the French, where there are but four guns to each three battalions.

One lesson of modern warfare has been the difficulties of carrying fortifications by assault in the face of rifle fire, so that more attention was being paid to mining operations. On the other hand European fortresses to resist such attacks were adding to and strengthening their counter mine galleries. In the case of coast defenses the protection of the submarine mine fields by quick-fire guns and electric search lights was a most important matter. Increased use was being made of portable search lights, an improved form of which used in Europe was comprised in two motor cars, one of which contained the dynamo and the other the search light itself.

THE KAISER MANŒUVRES of 1909 took place between September 13 and 17 and were noteworthy for the fact that the effective strength present was 125,000 or one-fifth of the Prussian army on a peace footing. Furthermore, all the troops of the southern states—Bavaria, Württemberg and the Grand Duchy of Baden—participated with the Prussians over a territory where once they fought as enemies. The Blue Army, commanded by General von Bock und Polach, was composed of the 1st Bavarian army corps, the Thirteenth Württemberg, and a corps of combined cavalry; each corps consisted of 2 infantry divisions of 2 brigades each, 1 brigade of

field artillery, and 1 of cavalry. The cavalry corps was composed of 2 divisions of cavalry, of 3 and 2 brigades respectively, 1 sub-division of signalers, and 1 of machine guns. The total of the Blue Army was 52 battalions of infantry, 67 squadrons of cavalry, 47 batteries of field artillery, and 4 batteries of foot artillery. Opposed to this force was the Red Army, commanded by General Field-Marshal Prince Leopold of Bavaria, and consisting of the Third Bavarian Army Corps, the Fourteenth Baden and a combined corps of a Baden and Bavarian division, or a total of 74 battalions, 67 squadrons, 62 field batteries, and 7 foot batteries, being thus superior in infantry and artillery to the Blue, but supplied with fewer cavalry. The manœuvres involved the operation of two completely independent armies, the general problem being "Whilst the troops of the Blue Army concentrate on a distant strategic point the Red State orders the mobilization of its army." By rapid marching, averaging 31 miles and amounting to 38½ miles and even 40½ miles in the case of the Rhenish Jägers, the Red Army was concentrated and brought into effective positions. The deployment of the infantry and their successful taking advantage of cover so that their motion was all but invisible was noteworthy and this it was thought would be further emphasized by the general use of the dark gray uniform adopted and issued during 1909.

THE FRENCH MANŒUVRES for 1909 occurred in the Bourbonnais district and the Thirteenth Army Corps under General Goiran and the Fourteenth Army Corps under General Robert, with a total strength of about 100,000 men, were engaged, the two forces being about evenly divided. The infantry was divided into regiments of three battalions, with their companies at full war strength, the artillery was organized in four-gun batteries, and the cavalry regiments were of four squadrons each. There was not a continuous movement of one army against the other, as in the case of the German manœuvres, but a succession of independent actions, the whole under the direction of General Tréneau. The strategy manifested in these manœuvres was deemed superior to that of the Germans, but the organization was far inferior.

MILITIA. As a result of measures which went into effect in 1908 there was established a division in the office of the War Department, known as the Division of Militia Affairs, and the enactment of other measures made the militia in effect a body of reserves to be called out at the discretion of the President. The creation of a Division of Militia Affairs was made necessary by the increasing volume of general business pertaining to the militia, especially under the Act of May 27, 1908, which placed militia affairs upon a new footing. By the terms of this act which amends the act of January 21, 1903, the militia consists of every able-bodied male citizen of the respective States and Territories and the District of Columbia, and every able-bodied male of foreign birth who has declared his intention to become a citizen, who is more than 18 and less than 45 years of age. The militia is divided into two classes, the Organized Militia, to be known as the National Guard of the State, Territory, or District of Columbia, or by some such similar designation, and the remainder to be known as the Reserve Militia. The Organized Militia is composed of the regular enlisted, organized

and active militia in the several States and Territories and in the District of Columbia who had, previous to the passage of the amendment, participated, or who shall thereafter participate in the annual appropriation provided by the revised statutes of the United States. On and after January 1, 1910, the organization, armament and discipline of the Organized Militia in the several States, Territories and District of Columbia, is to be the same as that which is prescribed for the regular army of the United States subject to certain supervision. To the President is given power in case of emergency to call forth such part of the militia of the State or States as he may deem necessary to repel invasion, suppress rebellion, or to enable him to execute such laws and to issue his orders to such members through the governors of the respective States or Territories or through the commanding general of the militia of the District of Columbia.

This act marks the first time that the powers of Congress with respect to the militia, which are granted by the Constitution, have been fully exercised.

The strength of the Organized Militia, as reported by the officers of the regular army after the annual spring inspection of 1909, was 118,926 officers and enlisted men, which is an increase of 7985 over that reported after the spring inspection of last year. After the spring inspection had been made, there were organized 31 companies of coast artillery and plans were made in the several seaboard States and in the District of Columbia for the organization of 19 more during the ensuing year, making a total of 138 companies of coast artillery which will probably be in existence by the end of the fiscal year, 1910. The strength of the militia comprised the following bodies: Infantry: 141 regiments, 9 separate battalions, and 8 separate companies; cavalry, 69; field artillery, 48 batteries; coast artillery, 88 companies, including those organized since the inspection. The report of the regular army officers made in connection with instruction and manœuvre camps and field exercises during the summer of 1909, indicate that there has been a material increase in the military efficiency of the Organized Militia. This increase in efficiency has been attributed in some part, at least, to the effects of the new law. As the militia in accordance with this law is, after January 21, 1910, to enjoy the benefits of the funds appropriated by Congress, and to have the same organization, armament and discipline as the regular army, it will be the duty of the War Department to note what departures, if any, are to be found among the State troops from the standard imposed by law. During 1909 the military authorities in the legislatures of the States have been actively engaged in endeavoring to meet the requirements of the law in regard to conformity with regular army standards. Such conformity has been satisfactorily established in all but two States. The States will, prior to the dates specified, pass laws which will accomplish conformity between their forces and those of the United States enjoined by the new law. The discipline of the State militia under the new standard will be the same as that of the regular army, but it is reserved to the States to have the authority of training the militia. The War Department may provide ways for training, make suggestions as to methods, and fix the standards that must be

attained, but it cannot directly conduct the training. With a view to meeting the full obligations of the Department in regard to instruction there has been organized in each division of military affairs an instruction branch for the object of placing at the disposal of the States every facility that can properly be extended under the law to assist the military authorities in imparting both theoretical and practical instruction to the State forces. Along these lines the War Department has encouraged the formation of correspondence schools for officers and enlisted men, and in connection with State encampments and special assemblages for field instruction has furnished commissioned officers and enlisted men to assist in giving practical instruction. Correspondence schools were pending organization during the year in the following States: Colorado, Florida, Georgia, Iowa, Kansas, Maine, Massachusetts, Michigan, District of Columbia, New York, Ohio, Pennsylvania, Tennessee, Texas, Vermont, Virginia, West Virginia, and Wisconsin.

The militia forces of all the States assembled in the camp for field manœuvres or practice marches during the summer of 1909. In connection with these encampments, the War Department, in accordance with applications of the State military authorities, ordered a number of organizations of the several arms of the regular service to proceed to the localities designated by the States, and go into camp with the State forces with a view to assisting in their instruction in field duties.

Through mutual agreement of the military authorities, the States of Massachusetts, Connecticut, New York and New Jersey, and the District of Columbia were ordered by their own respective military authorities to undertake combined manœuvres in the southeastern portion of Massachusetts, and in accordance with the request of these same authorities, and on the application of the commanding general of the Department of the East, the latter was authorized to conduct the usual manœuvres of the regular forces in the same section. Through mutual arrangement an interesting and instructive manœuvre problem was worked out in a practical way conjointly by those forces. The instruction of the auxiliary troops, Field Artillery, Cavalry, Signal Corps and Medical Corps was undertaken on the government reservation at Sparta, Wis., during the year. Three field schools of instruction for medical officers were also held at Antietam, Sparta and the Presidio of San Francisco. A battalion of regular field artillery was ordered to duty in June, and the military authorities of the States of Wisconsin, Michigan, Iowa, Indiana and Minnesota were invited to order the field artillery of their respective States to the Sparta reservation, to go into camp there with the regular forces, and to receive such instruction as could be imparted in a ten-day period. Reports indicate that instruction received in this school was very helpful to those under instruction.

Considerable progress was made during the year in developing the policy of the War Department in regard to creating an adequate body of coast artillery troops for use in coast fortifications, and to supplement at these points the coast artillery of the regular troops. Many States have accepted the invitation of the War Department to have a part of their infantry or

ganization participate with the regular coast artillery in coast defense exercises.

Forty-three militia teams attended the national rifle practice match at Camp Perry, Ohio, in 1909. The improvement in rifle firing at this contest over that of previous years was particularly noticeable. Past records were surpassed at almost every range.

The following table shows the strength (officers and enlisted men) of the Organized Militia, by branches of the service, as shown by the special inspections made by the United States inspecting officers specially assigned to the different States for this purpose during the spring of the year 1909:

State or Territory	General officers and general staff	Engineers	Cavalry	Field Artillery	Coast Artillery	Infantry	Hospital Corps	Signal Corps	Total
Alabama	40	3	278	287	110	2,546	24	26	3,314
Arizona	1	.....	50	.....	.....	579	1	.....	631
Arkansas	32	.....	.....	.....	.....	1,420	.....	.....	1,456
California	33	3	170	.....	.....	2,176	43	115	2,540
Colorado	16	.....	218	38	.....	546	5	23	845
Connecticut	41	.....	63	110	880	1,666	44	59	2,863
Delaware	10	.....	.....	.....	.....	381	10	.....	401
District of Columbia	19	.....	.....	78	.....	1,320	22	26	1,465
Florida	26	1	.....	.....	73	1,226	17	1	1,343
Georgia	31	1	366	161	163	2,283	37	1	3,033
Hawaii	10	1	.....	.....	.....	548	46	1	606
Idaho	12	.....	.....	.....	.....	639	.....	.....	651
Illinois	80	.....	448	395	.....	5,542	171	54	6,685
Indiana	32	1	.....	275	.....	2,081	64	38	2,491
Iowa	17	.....	.....	.....	.....	2,649	73	.....	2,739
Kansas	23	1	.....	79	.....	1,363	25	21	1,512
Kentucky	23	2	.....	.....	.....	1,977	98	.....	2,100
Louisiana	21	1	165	170	.....	937	4	61	1,369
Maine	15	.....	.....	.....	.....	1,287	26	.....	1,328
Maryland	30	.....	52	.....	44	1,905	37	.....	2,068
Massachusetts	93	2	175	378	817	4,282	173	61	5,931
Michigan	43	77	108	103	.....	2,317	57	77	2,782
Minnesota	36	1	.....	345	.....	2,525	41	.....	2,948
Mississippi	23	1	46	73	.....	1,251	.....	58	1,452
Missouri	47	1	.....	224	.....	3,028	86	54	3,440
Montana	9	.....	.....	.....	.....	530	2	.....	541
Nebraska	10	.....	.....	.....	.....	1,016	23	48	1,093
Nevada*	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Hampshire	30	.....	68	120	.....	1,424	26	10	1,676
New Jersey	97	11	154	214	.....	3,894	65	50	4,486
New Mexico	6	.....	31	.....	.....	144	.....	27	208
New York	268	724	573	408	2,265	10,637	437	172	15,484
North Carolina	48	4	.....	65	196	1,782	23	.....	2,118
North Dakota	19	.....	.....	40	.....	678	.....	.....	727
Ohio	116	219	128	121	.....	5,127	200	95	6,006
Oklahoma	8	42	.....	.....	.....	845	25	74	994
Oregon	21	.....	.....	122	73	1,315	38	.....	1,569
Pennsylvania	122	120	369	187	.....	9,513	138	59	10,503
Rhode Island	20	1	100	117	873	.....	20	20	1,151
South Carolina	28	1	.....	.....	.....	1,873	29	.....	1,931
South Dakota	14	.....	.....	.....	.....	741	6	19	780
Tennessee	6	.....	50	.....	.....	1,444	23	.....	1,523
Texas	47	1	192	86	.....	2,231	.....	37	2,594
Utah	9	.....	.....	55	.....	306	10	26	406
Vermont	2	.....	.....	103	.....	667	9	49	830
Virginia	20	.....	.....	268	70	2,019	15	.....	2,392
Washington	1	.....	58	.....	62	840	.....	62	1,023
West Virginia	20	1	.....	.....	.....	1,282	7	.....	1,310
Wisconsin	23	.....	71	106	.....	2,856	40	.....	3,056
Wyoming	9	.....	.....	.....	.....	440	.....	.....	449
Total	1,697	1,222	3,926	4,718	5,625	98,078	2,240	1,420	118,926

a No Organized Militia (mustered out, May 20, 1906).

MILLER, JOSEPH NELSON. An American rear-admiral (retired), died April 25, 1909. He was born in Springfield, Ohio, in 1836, and entered the navy at the age of 15. In the Civil

War he participated in the actions at Fort Sumter, Fort McAllister and Fort Fisher, in the last as captain of the *Monadnock*. He was made commander in 1870, captain in 1881, commodore in 1894, and rear-admiral in 1897. In 1875 he made deep-sea soundings in the Pacific, and took official possession of the Hawaiian Islands on their annexation to the United States. From 1888 to 1891 he commanded the New York Navy Yard, and in the Spanish-American War organized the Naval Reserves of the Pacific Coast. At the close of that war he was retired.

MILLIGAN, ROBERT WILEY. A rear-admiral retired from the United States navy, died October 14, 1909. He was born in Philadelphia in

1843 and was educated in the public and high schools of that city. He entered the navy as third assistant engineer in 1863. He was promoted to assistant engineer in 1866, passed as-

sistant engineer in 1874, chief engineer, 1892, commissioner, 1899, and captain, 1902. He served in some of the most important naval engagements of the Civil War and participated in the fall of St. Petersburg and Richmond. He was later on duty in the North and South Atlantic and Pacific squadrons and as instructor in the United States Naval Academy. He was chief engineer of the battleship *Oregon* on her famous run from the Pacific to the Atlantic Coast to take part in the blockade of the Spanish fleet at Santiago. In 1905 he was retired with the rank of rear-admiral.

MILLS, JOSE SMITH. An American bishop of the United Brethren Church, died September 16, 1909. He was born in Plymouth, Ohio, in 1848 and graduated from Illinois Wesleyan University. He was educated for the ministry under private teachers. He was pastor of Otterbein University from 1874 to 1880 and from 1885 to 1887. He occupied the chairs of English Literature, Rhetoric and Philosophy at Western College, Toledo, Iowa, from 1887 until 1893. During one year he was president of this institution. He traveled extensively abroad, visiting the universities of Berlin, Leipzig, Oxford and Cambridge in 1897, and again made a tour in Europe, Asia and Africa in 1903-4. In 1893 he was consecrated bishop. He was the author of *Mission Work in West Africa* (1898); *Manual of Family Worship* (1900); and *Holiness* (1902).

MINERALOGY. In mineralogical discoveries and investigations the year 1909 was characterized by progress, although there were no valuable finds of minerals equal to those of the preceding year or two, when several new diamond fields, including one in the United States, were brought to light. Further particulars of the new Arkansas field indicated the existence of two distinct peridotite intrusions quite similar in character to the South African pipes. Their development thus far has given satisfactory results. The discovery of diamonds at Oroville, Cal., and in Elliott county, Ky., was reported.

The recently opened diamond field in Lüderitzland, German Southwest Africa, has been described by H. Merensky. The deposits apparently are of unique type. Their source is a soft sandstone made up of chalcedony, jasper and white quartz. Owing to the dry climate the principal erosive agent in the region is wind which has worn down the surface and concentrated the coarser fragments of the sandstone in billowy ridges; the finer materials have been blown off and piled up in dunes. It is in the gravel ridges, especially near the summits, that the diamonds are mostly found. The fields are estimated by the writer to contain 1,500,000 carats that can be extracted at a profit. They extend along the coast from Lüderitz Bay to Angras Juntas, half way to the mouth of the Orange River. The diamonds are generally small, but their average quality is unusually fine.

A new locality for moonstone was reported to have been found at Weragoda in the southern province of Ceylon. Practically the whole supply of the mineral for gem purposes has come hitherto from the Kandy district of that island. In the newly discovered district the moonstone occurs with white kaolin and is obtained by sinking pits and washing the extracted material.

The sources of jadeite, the favorite stone of

the Chinese art worker, were long a mystery to mineralogists. They have recently been described in detail by A. W. G. Bleeker. The jadeite is found in the Kachin hills of Burma at three localities—Tawman, Hwéka and Mamon, of which the first mentioned is the most important and interesting. It occurs there in a dike which intersects the serpentine country rock. It is regarded as a metamorphic product of albite and nepheline, the original components of the dike.

Several new minerals were described for the first time in 1909. *Delorenzite* is a titanate of yttrium, uranyl, tin and iron, of complex chemical structure. It occurs at Craveggia in Piedmont, sometimes associated with the rare mineral strüverite. Its crystallization is orthorhombic, color black, and its hardness about 5.5 on the Mohs scale. *Alamosite* is the name given to lead metasilicate, corresponding in formula to wollastonite with the calcium of the latter replaced by lead. It comes from near Alamos, Sonora, Mexico. It crystallizes in the monoclinic system in snow-white fibrous aggregates, closely related to the forms of wollastonite. *Taramellite* belongs to the silicates and contains ferrous and ferric iron and barium. It is found in the limestone of Candoglia, Valle del Toce, Italy. It builds columnar or radiating fibrous aggregates of brownish red color. The hardness is 5.5. *Rinneite* is a chloride of iron, potassium and sodium and is found in coarse aggregates in the potash salt deposits of the southern Harz. *Arizonite*, a ferric metatitanate discovered in pegmatite near Hackburg, Arizona, contains the rare elements yttrium, cerium and beryllium. It is dark steel-gray in color and of metallic lustre. *Georgiadésite* belongs to the secondary lead minerals that occur in the ancient mines of Laurion, Greece. In composition it is a chloro-arsenate of lead. The crystallization is orthorhombic, the prismatic crystals having hexagonal outlines. The color is white and the hardness 3.5. *Carlosite*, a supposedly new mineral, has been shown by further study to be referable to the species neptunite, which has been described previously as occurring in Greenland.

MINERAL PRODUCTION OF THE UNITED STATES. The summary of the mineral production of the United States in 1908, prepared by the United States Geological Survey, shows a decline in the value of the mineral output amounting to about \$467,000,000, or 23 per cent. The figures for 1907-8 are \$2,071,607,964 and \$1,595,670,186 respectively. This great loss is due to the decrease in the output of both metallic and non-metallic products. The most notable decrease among the metallic products was in the production of iron ores (see IRON AND STEEL). The production of bituminous coal decreased about 16 per cent. Gains were shown in the production of gold and in the quantity of copper produced, but this gain in quantity was accompanied by a loss in total value due to the lower prices of copper. Petroleum showed a gain of about 8 per cent. in quantity and value. Gains were made by several States, notably California, Florida, Louisiana, New Hampshire, and South Dakota. The losses, however, were out of proportion to the gains. Alabama, Florida, Illinois, Michigan, Montana, New Jersey, New York, Ohio, Pennsylvania, Virginia, and West Virginia lost. See paragraphs *Mineral Production* under these States. The table

MINERAL PRODUCTS OF THE UNITED STATES IN 1907 AND 1908

From Mineral Resources of the United States

Product	1907		1908	
	Quantity	Value	Quantity	Value
METALLIC				
Pig iron, a spot value b..... long tons c..	25,781,361	\$529,958,000	15,936,018	\$254,321,000
Silver, commercial value d..... troy ounces	56,514,700	37,299,700	52,440,800	28,050,800
Gold, coining value e..... do.....	4,374,827	90,435,700	4,574,340	94,560,000
Copper, value at New York City..... pounds.	868,996,491	173,799,300	942,570,721	124,419,335
Lead, f value at New York City..... short tons..	365,166	38,707,596	310,762	26,104,008
Zinc, g value at New York City..... do.....	223,745	26,401,910	190,749	17,930,408
Quicksilver, value at San Francisco..... flasks g..	21,567	828,931	19,752	824,148
Aluminum, value at Pittsburgh..... pounds..	h 17,211,000	4,926,948	h 11,152,000	2,434,600
Antimony, i value at San Francisco..... short tons..	851	77,300	.....	.....
Antimonial lead..... do.....	9,910	1,322,985	13,629	1,264,771
Nickel, j value at Philadelphia..... pounds..	.....	(k) 33,285	(l) 750	(k) 14,250
Tin..... do.....	(l) 357	10,589	.....	.....
Platinum, value at New York City..... troy ounces..	.....	.....	.....	.....
Total value of metallic products.....	.....	903,802,244	.....	549,923,116
NON-METALLIC (SPOT VALUES)				
Bituminous coal m..... short tons..	394,759,112	451,214,842	332,573,944	374,135,268
Pennsylvania anthracite..... long tons..	76,432,421	163,584,056	74,347,102	138,178,849
Natural gas.....	.....	54,222,399	.....	54,640,374
Petroleum..... barrels n..	166,095,335	120,106,749	179,572,479	129,706,258
Peat.....	.....	.....	.....	133,000
Clay products o.....	.....	158,942,369	.....	133,197,762
Cement..... barrels p..	52,230,342	55,903,851	52,010,925	44,477,653
Lime..... short tons..	3,092,524	12,656,705	2,766,873	11,091,186
Sand-lime brick.....	.....	1,225,769	.....	961,326
Slate.....	.....	6,019,220	.....	6,316,817
Stone q.....	.....	71,105,805	.....	65,712,499
Corundum and emery.....	1,069	12,294	669	8,745
Abrasive quartz and feldspar..... do.....	17,435	126,582	11,725	79,146
Garnet for abrasive purposes..... do.....	7,058	211,686	1,996	64,620
Grindstones.....	.....	896,026	.....	536,095
Infusorial earth and tripoli.....	.....	104,406	.....	97,442
Millstones.....	.....	31,741	.....	31,420
Oilstones, etc.....	.....	264,188	.....	217,284
Pumice..... short tons..	8,112	33,818	10,569	39,287
Arsenic oxide..... pounds..	3,502,000	163,000	.....	(k) 975,000
Borax (crude)..... short tons..	52,850	1,121,520	25,000	102,344
Bromine..... pounds..	1,379,496	195,281	1,055,636	225,998
Fluorspar..... short tons..	49,486	287,282	88,795	4,138,560
Gypsum..... do.....	1,751,748	4,942,264	1,721,829	1,550
Lithium minerals..... do.....	530	11,000	203	4,330
Marls..... do.....	14,091	8,429	8,469	11,399,124
Phosphate rock..... long tons..	2,265,343	10,653,558	2,386,138	857,113
Pyrite..... do.....	247,387	794,949	222,508	6,668,215
Sulphur..... do.....	293,106	5,142,850	369,444	7,553,632
Salt..... barrels..	29,704,128	7,608,323	28,822,062	120,442
Barytes (crude)..... short tons..	89,621	291,777	38,527	(k) 2,410,367
Cobalt oxide..... pounds..	.....	(k) 68,694	.....	5,072,460
Mineral paints s..... short tons..	71,973	2,979,158	56,292	19,624
Zinc oxide..... do.....	71,784	6,490,660	56,292	1,888,881
Asbestos..... do.....	653	11,899	936	62,779
Asphalt..... do.....	223,861	2,826,489	185,382	132,556
Bauxite..... long tons..	97,776	480,330	52,167	234,021
Chromic iron ore..... do.....	290	5,640	359	33,904
Feldspar..... short tons..	84,549	499,069	67,240	415,063
Fibrous talc..... short tons..	67,800	626,000	70,739	138,646
Fuller's earth..... do.....	32,851	291,773	29,714	.....
Glass sand..... do.....	1,187,296	1,250,067	1,093,553	1,134,599
Graphite (crystalline)..... pounds..	4,947,840	171,149	2,288,000	75,250
Graphite (amorphous)..... short tons..	26,803	125,821	1,443	19,761
Magnesite..... do.....	7,561	22,683	6,587	61,144
Manganese ores..... long tons..	5,604	63,369	6,144	132,556
Manganiferous ores..... do.....	103,844	259,473	55,620	234,021
Mica (sheet)..... pounds..	1,060,182	349,311	972,984	33,904
Mica (scrap)..... short tons..	3,025	42,800	2,417	415,063
Mineral waters..... gallons sold..	52,060,520	7,331,503	56,108,830	7,287,269
Monazite and zircon..... pounds..	548,152	65,800	422,646	50,718
Precious stones..... short tons..	22,977	157,094	38,825	138,646
Quartz..... (u).....	.....	.....	.....	.....
Rutile..... (u).....	.....	.....	.....	.....
Sand (molding, building, etc.) and gravel..... short tons..	40,664,622	13,242,002	36,122,491	12,135,433
Talc and soapstone..... do.....	72,010	905,047	46,615	703,852
Tungsten..... do.....	1,640	890,048	671	229,955
Uranium and vanadium..... do.....	.....	(u).....	.....	.....
Total value of non-metallic mineral products.....	.....	1,167,705,720	.....	1,045,497,070
Total value of metallic products.....	.....	903,802,244	.....	549,923,116
Estimated value of mineral products unspecified v.....	.....	100,000	.....	250,000
Grand total.....	.....	2,071,607,964	.....	1,595,670,186

a Production of iron ore—1899: 24,683,173 long tons; value at mines, \$34,999,077. 1900: 27,553,161 long tons, value at mines, \$66,590,504. 1901: 28,887,479 long tons; value at mines, \$49,256,245. 1902: 35,554,135 long tons; value at mines, \$66,412,950. 1903: 35,019,308 long tons; value at mines, \$66,-

MINERAL AND METAL PRODUCTION OF THE UNITED STATES

PRELIMINARY STATISTICS, *Engineering and Mining Journal*

Product	Custom- ary Meas- ure	1908			1909			Changes in Quantity
		Quantity	Value		Quantity	Value		
			Total	Per Unit		Total	Per Unit	
NON-METALLIC:								
Coal, bituminous....	Short ton	337,929,633	\$387,678,973	\$1.14	360,076,905	\$414,448,517	\$1.15	I. 22,147,273
Coal, anthracite	Short ton	80,329,578	159,122,961	1.98	77,099,336	133,757,678	1.99	D. 3,230,242
Iron ore.....	Long ton	33,789,987	60,821,976	1.80	53,033,873	954,609,714	1.80	I. 19,243,886
Limestone flux.....	Long ton	9,563,158	4,720,485	0.47	14,070,000	7,316,400	0.52	I. 4,506,843
Petroleum.....	Barrel (b)	184,711,413	136,347,381	0.74	180,717,696	133,864,399	0.74	D. 3,993,717
METALLIC:								
Copper.....	Pound	948,196,490	127,438,536	13.424c	1,098,387,425	146,456,628	13.335c	I. 150,090,235
Iron, pig.....	Long ton	15,936,018	267,540,378	16.80	25,711,846	437,101,382	17.00	I. 9,775,828
Lead.....	Short ton	318,876	26,785,584	84.00	374,579	32,011,521	85.46	I. 55,703
Quicksilver.....	Flask (d)	17,969	805,690	44.90	20,000	926,000	46.30	I. 2,031
Zinc (e).....	Short ton	210,511	19,397,500	94.52	297,069	29,660,683	111.06	I. 56,558

(b) Barrels of 42 gal. (d) Flasks of 75 lb. (e) Includes zinc from foreign ore.

on preceding page gives detailed statistics of the production of minerals and metals in 1907-8. The accompanying preliminary statistics published by the *Engineering and Mining Journal*, though subject to revision, indicate very closely the output of the most important products of the year 1909, as compared with similar figures for 1908. Statistics of the individual metals and minerals will be found under their head in proper alphabetical order, as COAL, COKE, COPPER, GOLD, IRON AND STEEL, LEAD, NICKEL, SILVER, etc.

MINNESOTA. One of the North Central Division of the United States. Its total area

is 84,682 square miles. Its population in 1909, according to a Federal estimate made in that year, was 2,162,726.

MINERAL PRODUCTION. The chief mineral product of the State is iron ore, and in this the State ranks first in the point of production and value. There were produced in 1908, 18,652,220 long tons, valued at \$42,313,974. This, although far in excess of the production of any other State, was a marked falling off from the production of 1907, which was 28,969,658 long tons, valued at \$76,668,836. The chief source of production is the Mesabi range, from which were produced in 1908, 17,725,014 long tons. From the other important range, the Vermilion, was

328,415. 1904: 27,644,330 long tons; value at mines, \$43,186,741. 1905: 42,526,133 long tons; value at mines, \$75,165,604. 1906: 47,749,728 long tons; value at mines, \$100,597,106. 1907: 51,720,619 long tons; value at mines, \$131,996,147. 1908: 35,983,336 long tons; value at mines, \$81,846,904. Statistics for iron ore and for value of pig iron are collected by the Survey; statistics for output of pig iron are furnished by the American Iron and Steel Association.

b By "spot" value is meant value at the point of production.

c Long tons are tons of 2,240 avoirdupois pounds; short tons are tons of 2,000 avoirdupois pounds.

d Average price per troy ounce in 1906 was 67 cents; in 1907 it was 66 cents; in 1908 it was 63 cents.

e Prior to 1905, coining value, \$20.6718 per troy ounce; in 1905, coining value, \$20.671834; since 1905, coining value, \$20.671834625323.

f The products from domestic ores only.

g Of 76½ avoirdupois pounds net; of 75 avoirdupois pounds net since June, 1904.

h Consumption.

i Includes antimony smelted from imported ores and antimony contained in hard lead.

j Includes nickel in copper-nickel alloy and in exported ore and matte.

k Included under unspecified.

l Nineteen short tons of high-grade concentrates shipped to England from South Carolina in 1903. In 1904 about 142 short tons of concentrates from South Carolina, South Dakota, and Alaska shipped to England. In 1905 no production. In 1906, 2500 pounds of metallic tin, 55 short tons of concentrates from Alaska, and 14 short tons of concentrates from North Carolina and South Carolina. In 1907, about 89 short tons of concentrates. In 1908, no production.

m Includes brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania. Coke—1902: 25,401,730 short tons; value at ovens, \$63,339,167. 1903: 25,274,281 short tons; value at ovens, \$66,498,664. 1904: 23,661,106 short tons; value at ovens, \$46,144,941. 1905: 32,231,129 short tons; value at ovens, \$72,476,196. 1906: 36,401,217 short tons; value at ovens, \$91,608,034. 1907: 40,779,564 short tons; value at ovens, \$111,539,126. 1908: 26,033,518 short tons; value at ovens, \$62,483,983.

n Of 42 gallons.

o Value of clay mined and sold as unmanufactured clay—1899: Census returns, \$1,645,323. 1900: \$1,840,377. 1901: \$2,576,932. 1902: \$2,061,072. 1903: \$2,594,042. 1904: \$2,320,162. 1905: \$2,768,006. 1906: \$3,246,256. 1907: \$3,448,548. 1908: \$2,599,986.

p Of 380 pounds net.

q Includes limestone for iron flux, but not grindstones.

r Of 280 pounds net. Value is for net product exclusive of cost of packages.

s Includes metallic paint, ochre, umber, mortar colors, sienna, ground slate, shales, sublimed blue lead, sublimed white lead, and zinc-lead.

t Includes pearls valued at \$264,500 in 1907.

u Included under unspecified.

v Includes, in 1907: Nitrate of soda, carbonate of soda, sulphate of soda, and alum clays used by paper manufacturers; and molybdenum, nickel and cobalt, tantalum, titanium, uranium, and vanadium, valued together at \$31,945. In 1908: Nitrate of soda, carbonate of soda, sulphate of soda, and alum clays used by paper manufacturers; nickel and cobalt, cadmium, arsenic, and bismuth, valued together at \$169,281.

produced 927,206 tons. The decline in the production and consumption of iron ore in 1908 was the result of the cutting down of operations due to financial conditions. Clay products were produced to the value of \$1,508,710, as compared with \$1,689,933 in 1907. Other important products are sand and mineral waters. The total value of the mineral products of the State for the year 1908 was \$4,524,022, as compared with a value of the product in 1907 of \$5,457,422.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 58,812,000 bushels, valued at \$28,818,000, from 1,690,000 acres; spring wheat, 94,080,000 bushels, valued at \$90,317,000, from 5,600,000 acres; oats, 90,288,000 bushels, valued at \$31,601,000, from 2,736,000 acres; barley, 31,600,000 bushels, valued at \$14,852,000, from 1,399,000 acres; rye, 2,280,000 bushels, valued at \$1,368,000, from 120,000 acres; flaxseed, 4,500,000 bushels, valued at \$6,750,000, from 450,000 acres; potatoes, 18,400,000 bushels, valued at \$6,440,000, from 160,000 acres; hay, 1,622,000 tons, valued at \$9,732,000, from 927,000 acres. In the production of spring wheat Minnesota stands first among the States. The crop in 1909 was very largely in excess of that of 1908, which was 68,557,000 bushels. The acreage, however, increased only slightly. The corn crop in 1909 was also larger than that of 1908, which was 46,835,000 bushels. The acreage increased from 1,615,000 to 1,690,000 acres. The oat crop increased very materially in 1909 over the crop of 1908, which was 59,004,000 bushels. As in the case of corn and wheat, however, the acreage increased but slightly. In the production of barley Minnesota stands first among the States, although the crop of 1909 was slightly less than that of 1908, 32,500,000 bushels. The acreage of 1909 was slightly increased. A small quantity of beet sugar is produced in the State. The farm animals on January 1, 1910, were as follows: Horses, 767,000; mules, 9000; dairy cows, 1,125,000; other cattle, 1,228,000; sheep, 482,000; swine, 1,003,000. The wool clipped in 1909 was estimated at 2,560,240 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$191,950. Of these the most important in point of value was German carp, of which 1,132,400 pounds, valued at \$26,320, were taken. Among other important fish taken were buffalo, 664,300 pounds, valued at \$22,460; fresh herring, 1,612,400 pounds, valued at \$20,880; salted herring, 1,165,200 pounds, valued at \$17,610. Other fish taken were pike, pickerel, sturgeon, lake trout and whitefish. There were 807 independent fishermen engaged in the fisheries of the State, with 127 wage-earning fishermen employed. There were four vessels engaged in the fisheries of the State, valued at \$12,814.

EDUCATION. The school attendance in 1909 was 435,282. There were 1613 male teachers and 13,146 female teachers. The average salary of the male teachers in high and grammar schools was \$107.66 and of female teachers, \$53.56. The total expenditure for education during the year was \$12,500,000.

FINANCE. According to a report of the State Treasurer for the fiscal year ending July 31, 1909, there was a balance in the treasury on

August 1, 1908, of \$2,968,282. The receipts for the fiscal year 1909, were \$12,521,986 and the expenditures were \$12,717,018, leaving a balance in the treasury on July 31, 1909, of \$2,773,250. The chief receipts were from county treasurers, from State institutions, and from railway companies. The chief disbursements were for education.

CHARITIES AND CORRECTIONS. The institutions under State control include the Insane Asylums of the State, School for the Blind, School for the Feeble Minded and School for the Deaf at Faribault, State Public School at Owatonna, State Training School at Red Wing, State Reformatory at St. Cloud and State Prison at Stillwater. New institutions provided for in 1907 and now occupied are detention hospitals at the various hospitals for the insane, a hospital for dangerous and criminal insane at St. Peter, a hospital farm for inebriates and a hospital for crippled and deformed children at St. Paul. A law passed in 1907 provides also for the appointment of State agents for the care of the insane after their discharge from hospitals.

POLITICS AND GOVERNMENT. Governor John A. Johnson (q. v.) died on September 21 and was succeeded by Lieutenant-Governor A. O. Eberhart, thus placing the State under a Republican executive for the first time in several years.

Governor Johnson was inaugurated on January 6, and in his annual message to the legislature he advocated State regulation of public utilities corporations, such as electric railways, telephones, telegraph, power and lighting companies. He declared that this was necessary both for the public good and in the interest of the stockholders of the corporations concerned. There is no question, he said, but that a public utility law like that of Wisconsin, New York, Massachusetts and other progressive States will be of great service to this State and to its municipalities in securing efficient service and just rates, as well as in settling disputes and grievances and adding to the security and attractiveness of investments in such enterprises.

On February 4 the legislature defeated by a vote of 73 to 44 a bill for county local option, thus preventing for the time being the spread of Prohibition in the State through legislative means. The only progress which the Prohibitionists have been able to make in the State in a legislative way is the local option act passed several years ago, which applies only to certain districts and towns. On March 10, village elections were held throughout the State and the result showed an advantage for the anti-saloon movement. Saloons were voted out in several of the larger towns. On April 10, Governor Johnson signed the Works bill, giving the cities in the State the right to establish the commission form of government. The bill passed both houses of the legislature with practically no opposition.

It was the declared intention of Governor Johnson to call a special session of the legislature to take action on the income tax, which was urged by President Taft, and to discuss certain measures declared unconstitutional by the Supreme Court. The call for the special session was not made, however, up to the time of Governor Johnson's death. The pure food law, passed by the legislature of 1908, was declared constitutional by the State Supreme Court, February 5. A bill to abolish capital punishment in the State was indefinitely postponed by the

legislature on March 9. See **ELECTORAL REFORM.**

LEGISLATION. Among the measures enacted by the legislature of 1909 are those given below: A measure was enacted fixing maximum freight rates and a number of acts were passed regulating the operation of railroads. The granting of liquor licenses was restricted to one for every 500 of population. The sale of cigarettes in the State was prohibited. A law was passed prescribing the form of policy for accident insurance. Several new laws relating to labor were passed, among them measures requiring sanitary places for work and regulating the labor of women and children. A tax was levied, the proceeds of which was used to acquire land for purposes of reforestation. A commission was appointed to consider the matter of compulsory insurance of employees against accidents, etc.

OFFICERS: Governor, Adolph O. Eberhart, Rep.; Lieutenant-Governor, office vacant; Secretary of State, Julius A. Schmahl; Auditor, S. G. Iverson; Treasurer, C. C. Dinehart, Rep.; Attorney-General, Geo. T. Simpson, Rep.; Adjutant General, Fred B. Wood, Dem.; Superintendent of Education, C. G. Schultz, Rep.; Commissioner of Insurance, J. M. Hartigan, Dem.

JUDICIARY. Supreme Court: Chief Justice, Charles M. Start, Rep.; Associate Justices, Calvin L. Brown, Rep.; Edward A. Jaggard, Rep.; Charles L. Lewis, Rep.; Thos. D. O'Brien, Dem.; Clerk, C. A. Pidgeon, Rep.

The State Legislature of 1909 was composed of 44 Republicans, 18 Democrats and 1 Populist in the Senate, and 94 Republicans, 22 Democrats, and 3 Prohibitionists in the House. The State representatives in Congress will be found in the section *Congress* of the article **UNITED STATES.**

MINNESOTA, UNIVERSITY OF. An institution of higher learning at Minneapolis, Minn., founded in 1869. The attendance in 1908-9 numbered 5066, with a faculty of 352. There were in the library 135,000 volumes. Five members of the faculty resigned during the year and sixteen were added. Provision was made for evening, extension and correspondence courses and the work was in operation in the autumn of 1909. The University is supported by the State. The president is Cyrus Northrop, LL. D.

MISSIONARY ASSOCIATION, AMERICAN. A society founded in 1846 which carries on missionary work under the auspices of the Congregational denomination. It was founded with the object of spreading the Gospel wherever there was opportunity. Its work is educational and missionary, with especial attention to industrial training among the eight different classes included in the population of the United States. The widest field of the society is in the South. It includes also Porto Rico, the Indian reservations of the Northwest, Alaska, the Orientals on the Pacific Coast, and Hawaii. In the South are maintained four theological seminaries, 4 colleges, 28 secondary institutions, 12 elementary institutions and 22 negro schools. These institutions have 15,221 pupils, with 570 officers and instructors. The larger number of the schools are for negroes. At the head of the system of negro schools are six chartered institutions. These are: Fisk University in Tennessee; Talladega College in Alabama; Tougaloo University in Mississippi and Tillotson College in Texas. These institutions afford opportunity

for the higher education and seek to train leaders for the negro race. A marked feature of the work of the year 1908-9 was the extension of agricultural instruction and a more adequate equipment in some of the schools for the teaching of the industries. The society has one school with 159 pupils and eight instructors in Porto Rico. In that Island there are also ten churches, 22 out-stations, 16 missionaries and evangelists and 591 church members. In the Northwest, including Alaska, are 21 churches, 24 stations and out-stations, 16 missionaries and evangelists and 591 church members. In the Northwest, including Alaska, are 21 churches, 24 stations and out-stations, 1538 church members and 1187 Sunday school scholars. Indian missions are carried on in six reservations, and a normal school is maintained at Santee. In the Oriental missions in California there are ten churches and branch churches, 7 ministers and missionaries, and 521 church members. There are maintained 21 mission schools, with 2109 pupils. The total receipts of the society for the year ending September 30, 1909, were \$447,903.43, with expenditures of \$400,537.95, leaving a credit balance of \$47,365.48. In addition, there was received as income from the various funds about \$100,000. The official organ of the association is *The American Missionary*, issued in ten monthly numbers during the year. The officers are: Rev. Amory H. Bradford, President; Rev. Asher Anderson, Recording Secretary; Rev. A. F. Beard, D. D., Honorary Secretary and Editor. The central office is 287 Fourth Avenue, New York City.

MISSIONS, PROTESTANT FOREIGN. The year 1909 was remarkable in foreign missions in several particulars:

First, the cause of missions as an enterprise has gotten a better grip on the hearts of men of affairs at home. As illustrative of this is the fact that public men like President Taft have taken occasion repeatedly to speak out their approval of missionaries and their work. The great legacy of nearly \$10,000,000 left by Mr. John S. Kennedy, of which amount one-quarter is for the work abroad, is another proof. The great interdenominational Laymen's Missionary Movement, inaugurated in 1906, but which was brought strikingly to the attention of the public during 1909, is still another evidence. This movement is under the direction of a general committee which meets twice a year, and an executive committee of twenty-one members which meets once a month. Its sole purpose is to awaken the men of the churches to a sense of their responsibility for the evangelization of the world and to inspire them to much larger giving to this work through their respective boards or societies. A series of laymen's missionary conventions was held in the winter of 1909-10 in 75 of the leading cities of America, which were remarkably successful in accomplishing their object. These conventions will culminate in a grand national rally in Chicago in May.

Second, the cause of missions made striking advances, also, during 1909 in the different missionary lands. In Japan, the fiftieth anniversary of the beginning of Christian work has been celebrated with much rejoicing, not only by the 762 missionaries of all denominations, but by the native church of 80,000 members, which stands as a convincing testimony to the success of the work. An aggressive evangelistic move-

ment on the part of the Japanese churches characterized the year. In Korea the marvelous ingathering continued as the Gospel spread like a wave over the land, making it impossible for

relating to missions in the Protestant countries in 1909, including the number of missionaries from the different countries, the communicants and the adherents for the different missions:

STATISTICS OF THE PROTESTANT MISSIONARY SOCIETIES OF THE WORLD FOR 1909

	Home Income	Total Mis- sionaries	Native Helpers	Force in the Field	Stations and Out- Stations	Communi- cants	Added in 1908	Adherents (Native Christians)	Schools
America	\$11,317,405	7,677	30,476	38,347	13,144	769,576	70,992	1,244,480	9,949
Great Britain	9,584,653	9,257	38,804	48,063	16,785	606,239	32,412	1,900,078	10,649
Germany	1,869,964	2,131	7,917	9,864	4,254	250,782	16,600	572,701	3,373
Other countries	1,852,053	2,481	16,025	18,856	9,761	472,366	15,137	1,179,402	5,219
Totals for Christendom.	\$24,624,075	21,834	93,272	115,130	43,934	2,097,963	135,141	4,866,661	29,120

the missionaries properly to care for the inquirers and converts. In China a revival swept the northern and central sections. Moreover, the almost universal desire for education has crowded the mission schools to overflowing and has impelled the different missionary agencies to join forces in their plans for schools to meet the present crisis. In India, while efforts for the upper classes have not abated, attention has been turned to the common people, the low castes, who have responded in an unexpected manner, and the missionaries now are face to face with the problem of industrial education to meet the needs of these converts, who are poor and degraded and who must be uplifted and given the opportunity of self-support. In Persia and Turkey the political revolutions have resulted in a spirit of freedom and a measure of religious liberty which have given a new outlook to work among the Mohammedans. But perhaps the greatest surprise of all has come from Africa, where great awakenings are reported among the natives. In both the western and eastern portions of Central Africa literally thousands crowded the churches, necessitating the removal of the walls of the building or of holding great outdoor services in order to afford the masses an opportunity to hear the Gospel.

Third, another significant feature of the year was the visits of prominent individuals to mission fields. Ex-President Roosevelt, before setting out for East Africa, obtained a list of mission stations in the regions through which he expected to travel. He visited that work as opportunity afforded and is writing of it in very warm terms. Mr. Robert E. Speer has made a tour of the mission stations in the principal countries of South America, including Brazil, Uruguay, Argentina, Chile, Bolivia, Peru and Colombia, and returned aglow with the need and the possibilities of the work which he saw. Dr. Arthur J. Brown, after a similar experience in Japan, Korea and China, came back not only amazed at the progress of the last decade, but with a profound sense of the opportunity now before the Church in each of those countries; while Mr. John R. Mott's visit to Russia and his work among the students there produced a powerful impression upon all classes, and is to be regarded as nothing short of an epoch-making event. Altogether, no year in the history of foreign mission work has been crowned with happier results than the year 1909.

The following table, taken from the *Missionary Review of the World*, gives various statistics

MISSISSIPPI. One of the South Central Division of the United States. Its total area is 46,665 square miles. Its population in 1909, according to a Federal estimate made in that year, was 1,786,773.

MINERAL PRODUCTION. The State is not important as a producer of minerals. The most important are clay products, which in 1908 were valued at \$828,739, as compared with a value of \$846,529 in 1907. The State produced in 1908, 257,200 gallons of mineral water valued at \$52,780. Other mineral products are coal products, sand and gravel, and sand-lime brick. The total value of the mineral products of the State for 1908 was \$974,518, as compared with a value of the products in 1907 of \$1,024,302.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 40,745,000 bushels, valued at \$33,003,000 from 2,810,000 acres; winter wheat, 11,000 bushels, valued at \$13,000 from 1000 acres; oats, 2,400,000 bushels, valued at \$1,632,000 from 150,000 acres; rye, 30,000 bushels, valued at \$24,000 from 1000 acres; potatoes, 783,000 bushels, valued at \$744,000 from 9000 acres; hay, 122,000 tons, valued at \$1,403,000 from 83,000 acres; tobacco, 50,000 pounds, valued at \$13,000 from 100 acres. In the production of cotton, Mississippi ranked fourth in 1909, being surpassed only by Texas, Georgia and South Carolina. The estimated crop for the year was 1,020,000 bales. The number of farm animals in the State has remained practically constant since 1900. The estimated wool clipped in 1909 was 477,840 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$556,180. Of these the most important in point of value was oysters, of which 1,067,600 bushels, valued at \$295,340, were taken. Next in importance were shrimp, 4,120,500 pounds, valued at \$80,540; buffalo, 1,663,900 pounds, valued at \$34,470; catfish, 502,100 pounds, valued at \$19,480; menhaden, 3,149,300, valued at \$3950; mullet, 1,035,400 pounds, valued at \$19,510. Other fish taken in considerable quantities were bass, trout, crabs and paddle fish. There were 989 independent fishermen engaged in the fisheries of the State, and 1048 wage-earning fishermen employed. There were 203 vessels engaged in these fisheries, valued at \$316,845.

EDUCATION. The latest report of the State Superintendent of Education available is for the biennium 1906-7. In the latter year there were 4068 white schools and 2951 colored schools. The number of white pupils enrolled was 174,782, and colored, 248,095. The number in average daily attendance was 110,623 white and 137,536 colored. The total number of white teachers employed was 5068, and colored, 2308. The average monthly salary of white teachers was \$39.50, and of colored teachers, \$20.52.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the State Charity Hospital at Vicksburg, the Confederate Hospital Annex at Vicksburg, the Natchez Hospital at Natchez, the Eastern Mississippi Insane Asylum, Deaf and Dumb Institution, and Institution for the Blind.

POLITICS AND GOVERNMENT. On May 19 the Railroad Commission decided by unanimous vote to permit the railroad passenger rate in the State to remain at three cents a mile. On August 4, fifteen members of the Mississippi branch of the Louisiana and Mississippi Retail Lumber Dealers' Association, who had been found guilty by the State courts for maintaining combinations in restraint of trade, each paid \$800 fine and the costs, the total in each case amounting to about \$1200; fifty-eight other members of the same branch who had been found guilty declined to make settlement, although they had been found guilty in the State courts, and appealed to the Federal courts, preferring this action to a settlement. On December 26, Senator A. J. McLaurin (q. v.) died and Colonel Joseph Gordon, a Confederate veteran of the Civil War, was appointed by the Governor to fill the vacancy until a successor to Senator McLaurin could be chosen by the legislature. On January 1, State-wide Prohibition went into operation. See **ELECTORAL REFORM.**

OTHER EVENTS. Boll-weevil ravages in the southwestern counties proved far more disastrous than was expected. An extensive migration of negroes followed and cotton planting will be greatly restricted in 1910.

On June 11 a statue of Stephen D. Lee was unveiled at Vicksburg.

OFFICERS: Governor, E. F. Noel; Lieutenant-Governor, Luther Manship; Secretary of State, J. W. Power; Treasurer, Geo. R. Edwards; Auditor, E. J. Smith; Superintendent of Education, J. N. Powers; Attorney-General, J. B. Stirling; Adjutant-General, Arthur Fridge; Land Commissioner, J. L. Gillespie; Commissioner of Agriculture, H. E. Blakeslee; Commissioner of Insurance, T. M. Henry—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, A. H. Whitfield; Associate Justices, Robert B. Mayes and Sidney M. Smith; Clerk of the Court, George C. Meyers—all Democrats.

The State Legislature of 1909 was wholly Democratic. The State representatives in Congress will be found in the section *Congress* of the article **UNITED STATES.**

MISSISSIPPI RIVER BRIDGE. See **BRIDGES.**

MISSOURI. One of the Central States of the United States. Its area is 69,430 square miles. Its population in 1909, according to a Federal estimate made in that year, was 3,491,397.

MINERAL PRODUCTION. Missouri is one of the

chief States producing lead and zinc. The production of lead in 1908 was 123,458 tons, which is almost exactly the production of 1907, 122,856 tons. The production of zinc in 1908 was 123,655 short tons, valued at \$11,623,570, as compared with the product of 1907 of 141,824 short tons valued at \$16,735,232. The coal production of 1908 was 3,317,315 short tons, with a spot value of \$5,844,907. This was a decrease of 680,621 short tons in quantity from the product of 1907, and of \$1,095,802 in value. The decrease was caused largely by the increased production and consumption of petroleum and natural gas in the mid-continent fields, while the general business depression affected the output to some degree. To the coal production in the State for the last few years should be added a considerable tonnage credited to Kansas. The workings of the mines at Leavenworth on the Missouri River extend under that river into Missouri territory, and the larger part of the production of Leavenworth county, Kansas, is in fact taken from beds underlying Platte county, Missouri. This amounts to probably a quarter of a million tons. In spite of the decreased production of 1908, there was a larger number of men employed during the year than in 1907. The total number was 8988, as compared with 8448 in 1907. Practically all the more important coal-mining operations in the State are conducted on the basis of the 8-hour day. There were during the year ten fatal and thirty-six non-fatal accidents in the coal mines of Missouri. The iron ore production in 1908 was 98,414 tons, as compared with 111,768 tons in 1907. The value of the product in 1907 was \$218,182, as compared with a value for the product in 1907 of \$226,286. The latter figures, however, include the product of Iowa. There is a considerable amount of copper mined. The State has important products of clay. These amounted in 1908 in value to \$5,631,456, as compared with a value of \$6,898,871 for the product of 1907. Among other mineral products are building stone, cement, lime-rock, gravel, glass-sand, mineral waters, natural gas, petroleum, sulphur and barytes. The value of the mineral products of the State in 1908 was \$41,499,835, as compared with the value of the product in 1907 of \$53,129,431.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 213,840,000 bushels, valued at \$126,166,000 from 8,100,000 acres; winter wheat, 28,562,000 bushels, valued at \$29,969,000 from 1,943,000 acres; oats, 18,630,000 bushels, valued at \$8,011,000 from 690,000 acres; barley, 50,000 bushels, valued at \$34,000 from 2000 acres; rye, 225,000 bushels, valued at \$184,000 from 15,000 acres; buckwheat, 42,000 bushels, valued at \$37,000 from 2000 acres; flaxseed, 202,000 bushels, valued at \$232,000 from 25,000 acres; potatoes, 7,480,000 bushels, valued at \$5,012,000 from 88,000 acres; hay, 3,719,000 tons, valued at \$30,868,000 from 2,755,000; tobacco, 4,425,000 pounds, valued at \$575,250 from 5000 acres. In the production of corn Missouri is surpassed only by Illinois and Iowa. The crop in 1909 was slightly larger than that of 1908, which was 203,634,000 bushels, while the acreage increased from 7,542,000 to 8,100,000 acres. The wheat crop of 1909 was also slightly larger than that of 1908, which was 22,260,000 bushels. The acreage,

however, slightly decreased in 1909. The oat crop increased from 13,510,000 bushels in 1908 to 18,630,000 bushels in 1909. The acreage decreased by 10,000 acres. The potato crop showed an increase of nearly 1,000,000 bushels, the product of 1908 having been 6,800,000 bushels. The number of farm animals in the State on January 1, 1910, were as follows: Horses, 1,005,000; mules, 344,000; dairy cows, 925,000; other cattle, 2,165,000; sheep, 957,000; swine, 2,714,000. The State ranks second in the number of mules, fourth in the number of swine, and fifth in the number of neat cattle. The wool clipped in 1909 was estimated at 5,125,680 pounds. The cotton crop of 1909-10 was estimated at 49,000 bales.

EDUCATION. The school enrollment for the year ending June 30, 1908, was 701,820, and the average daily attendance was 487,366. The number of male teachers for the year ending June 30, 1909, was 4831, and of female teachers, 13,298, or a total of 18,129. The average monthly salary of men teachers was \$61.26, and of women teachers, \$53.19, or a general average of \$56.37. There has been a great educational awakening in the State in the last few years. The last General Assembly adopted a law providing for efficient county school supervision in each county. The law has a number of very excellent features, and as a result the schools of the State have taken on new life. There are county school superintendents in each of the 114 counties, and all were engaged in 1909 in visiting the schools, in pressing a plan of better organizing the schools, the grading of rural schools, the graduation of pupils from the eighth grade into the high schools, etc.

FINANCE. The report of the State Treasurer showed a balance in the treasury on January 1, 1908, of \$947,149. The receipts for the fiscal year ending December 31, 1908, were \$7,703,604, and the disbursements were \$7,247,105, leaving a balance on December 31, 1908, of \$1,403,648. The chief receipts are from taxes, and the chief expenditures are for education. The State debt on December 31, 1908, amounted to \$4,398,830.

CHARITIES AND CORRECTIONS. The institutions under the supervision of the State Board of Charities and Corrections are as follows: School for the Blind at St. Louis; School for the Deaf at Fulton; Tuberculosis Sanatorium at Mt. Vernon; Confederate Soldiers' Home at Higginsville; Federal Soldiers' Home at St. James; five Insane Hospitals; the Feeble-Minded and Epileptic Colony at Marshall; Industrial School for Girls at Chillicothe; Training School for Boys at Booneville; State Penitentiary at Jefferson City, and county almshouses, hospitals, State prisons, and county jails. Juvenile courts are also maintained under the direction of the Board at St. Louis and Kansas City. The total number of persons under the care of the State on January 1, 1909, was 8777, of whom 5809 were in the charitable and 2968 in the penal institutions. Of this number 4324 were in the four State insane asylums, while in the St. Louis City Insane Asylum there were 647 inmates. On the same date there were 3295 paupers, 509 feeble-minded, 338 epileptics, 95 blind, 290 sick or crippled and 140 paralytics.

POLITICS AND GOVERNMENT. On January 7, Governor Joseph W. Folk sent his last message to the legislature. In this he reviewed his ad-

ministration's achievements, and dwelt upon ballot reform and regulation of the liquor traffic. He recommended disfranchisement of men who failed to vote, measures empowering wards of large cities to exclude saloons, and measures permitting counties to vote as a whole to exclude saloons, and to prohibit breweries and distilleries from owning an interest direct or indirect in saloons or mortgages on saloons. Governor Hadley, who was chosen Governor in the election of November, 1908, on the Republican ticket, was inaugurated on February 5. The contest for Lieutenant-Governor between Jacob F. Gmelich, Republican, and William R. Painter, Democrat, was so close that it was necessary to carry the election into the Assembly. The Assembly in joint session on February 1 declared, after the report of the recount committee, previously appointed, that Gmelich had received 346,642 votes, as against 346,465 votes for Painter. On January 20, William Jones Stone was reelected Senator, as a result of the primary election in November, 1908. In January the United States Supreme Court upheld the verdict of the State courts against the Waters-Pierce Oil Co., the Republic Oil Co., of New York, and the Standard Oil Co., of Indiana. For an account of developments in regard to the State and the Standard Oil Co., see the article STANDARD OIL CO.

On March 8, Judge McPherson, of the United States District Court, handed down a decision which annulled the railway rate laws passed by the legislature of 1907. These laws established a passenger rate of two cents a mile, in addition to certain definite freight rates. The railroads at once secured a court order, temporarily preventing the enforcement of the laws and thereafter agreeing not to obstruct the law until it was fairly tried. Following a test of several months a case was brought to trial, and eighteen railway lines operating in the State appeared against the law. The railroads protested that the law deprived them of adequate returns on the investment, while the State took the ground that the law did not interfere with legitimate profits. Judge McPherson ruled that the evidence in the case showed without question that the rates fixed by the law on traffic in the State did not allow a fair and reasonable profit over and above the cost of that traffic. The State on July 28 appealed the railway rate cases to the United States Supreme Court. (See RAILROADS.) On August 24, the United States Circuit Court declared against the Interstate Commerce Commission in the so-called Missouri River rate case, and made permanent the injunction against the Interstate Commerce Commission, sought by certain Western railroads. The railroads in the Missouri River rate case sought to have the Interstate Commerce Commission enjoined permanently from enforcing an order of the Commission made on June 24, 1908, relating to joint rates from the Atlantic Seaboard to the Missouri River cities. This order sought to create a system of through rates from the Atlantic Seaboard to the Missouri River, that were a reduction from the sums of the total rates. This, according to the Western railroads, threw the burden upon them. See RAILROADS.

In the election held on April 6 in St. Louis, Frederick H. Kreismann, Republican, defeated William F. Woerner, Democrat, for mayor by about 10,000 majority. The entire Republican ticket was elected by safe majorities.

The legislature passed many stringent laws during this session, some of which are noted below. Among these was the anti-cigarette bill, which was signed by Governor Hadley on June 8. This prohibits the smoking of cigarettes in public places by persons between the ages of 10 and 18 years. Certain of these laws went into effect on August 15, and as a result a crusade against all games of chance in cigar stores was begun in St. Louis, and also the enforcement of stringent measures against liquor sellers. On November 4, the long and memorable blue-law crusade in Kansas City, instituted in 1908 by William H. Wallace, then Judge of the Criminal Court, against alleged violations of the so-called Sunday laws, which had resulted in more than 10,000 indictments by the grand jury against Kansas City theatre managers, actors and theatre employees, employees of pool and billiard halls, came to an end when Virgil Conkling, prosecuting attorney, entered a *nolle prosequi* in more than 4000 cases.

On December 16, the attempt of the Metropolitan Street Railway Company of Kansas City to obtain a 42-year franchise was defeated at the polls by a majority of 7091 votes. This was the first election ever held in Kansas City under the referendum law. The Metropolitan Street Railway Company was controlled by the Armour interests of Chicago. It has a monopoly of the streets in Kansas City, and still has a franchise with sixteen years to run. The Street Railway Company proposed to extend this to forty-two years, and in return offered six tickets for a quarter, sold on the cars, and twenty-five tickets for a dollar, sold in twenty-five drug stores in Kansas City, Mo., and Kansas City, Kan. The opposition to the franchise was headed by the City Clubs' Committee of 100, backed by the Kansas City *Star*. It was contended by the opponents of the extension that sixteen years was too far ahead for the city to vote a franchise, and especially one for so long a period. It was asserted also by leading attorneys for both political parties that the franchise was so worded that the Metropolitan Co. could not be forced to abide by the terms of the ordinance. The vote was the largest ever cast in the history of the State in comparison with the registration. This registration was reduced as the law did not allow a new registration, and 14,000 citizens out of a registration of 50,000 were disfranchised. See **ELECTORAL REFORM**.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: An act was passed providing for an amendment to the Constitution, permitting the use of the initiative and referendum in legislation. Measures were enacted providing for a bureau of dairying, and for extension courses in agriculture, under the direction of the State University. Columbus Day, October 12, was made a legal holiday. Measures were passed, providing that railroad employees are to be paid on or before the 15th of each month after the month in which the services are rendered. Judicial courts are provided for all counties having a population of over 50,000. Divorce advertisements are prohibited. A pure food law was adopted, and a comprehensive law for collecting and preserving vital statistics was enacted. Inn-keepers are regulated for purposes of sanitation. Many important amendments were made to the laws relating to education.

OFFICERS: Governor, Herbert S. Hadley;

Lieutenant-Governor, J. F. Gmelich; Secretary of State, Cornelius Roach; Auditor, John P. Gordon; Treasurer, James Cowgill; Attorney-General, Alexander Major; Superintendent Public Schools, Howard Gass; Adjutant-General, F. M. Rumbold; Commissioner of Insurance, Frank Blake—all Democrats except Hadley, Gmelich, Rumbold and Blake.

JUDICIARY. Supreme Court: Chief Justice, Leroy B. Valliant; Associate Justices, Henry Lamm, Walter W. Graves, James B. Gantt, A. M. Woodson, Govon D. Burgess, James D. Fox; Clerk, John R. Green—all Democrats except Lamm.

The State Legislature of 1909 was composed of 23 Democrats and 11 Republicans in the Senate, and 69 Democrats and 73 Republicans in the House. The State representatives in Congress will be found in the section *Congress of the article UNITED STATES*.

MITCHELL, HENRY. An American engraver, died August 1, 1909. He was born in New York City in 1836. At the age of ten he began to learn engraving. At nineteen years of age he engraved a medal for the Maine State Fair, and a year later he engraved the greater part of the national medal for Commodore Perry. In the same year he made all the seals for the Hawaiian government. He designed, also, the medal for the Centennial Exposition. In 1868 he became official engraver of dies for the stamped envelopes of the United States government, and he continued to hold this office until his death. He was one of the best known designers of coats-of-arms in the world.

MODERNISM. See **ROMAN CATHOLIC CHURCH**.

MODJESKA, HELENA. A Polish-American actress, died April 8, 1909. She was born in Cracow, Poland, in 1844. Her maiden name was Helen Opid, and she married, at the age of sixteen, Gustav Modrzejewski. This name, on her coming to America, she simplified to Modjeska. Mme. Modjeska had made her reputation as the greatest actress in her native country before she came to the United States. She was also conspicuous in the political movements against Russia in Poland, and in 1876 she, with a company of compatriots, which included Henryk Sienkiewicz, later the famous novelist, emigrated to the United States for the purpose of founding a colony in California. Mme. Modjeska had, following the death of her husband, become, in 1868, the wife of Count Charles de Bozenta Chlapowski, one of the foremost opponents of Russian rule in Poland. The scheme of colonization failed, and Mme. Modjeska was compelled to return to the stage. She knew no English, and she was unknown as an actress, but through the aid of John McCulloch she secured an engagement in San Francisco in 1877. She acted for a season in that city, and then went to New York, where at first her audiences received her with small favor, but later became enthusiastic. In 1879 she returned to Poland and acted with her compatriots for a year, and in 1880 she went to London where she was warmly received. From this time her fame as a tragedienne grew constantly, and she became the most eminent actress on the American stage. Her versatility was remarkable. She acted in practically the whole repertoire of Shakespearean plays, and was especially notable as Rosalind and Lady Mac-

beth. Great parts, too, were Camille and Mary Stuart. She appeared with great success, also, in modern plays. Although Mme. Modjeska never learned to speak English proficiently, so great was her dramatic power that, even in plays in that language, her audiences rarely felt the lack. In 1897 she went again to Poland, but she was refused permission to act because of a speech made by her at the Woman's Congress at the Chicago World's Fair. In 1905 Mme. Modjeska resolved to retire from the stage, although still in the fullness of her powers. She was given a testimonial at the Metropolitan Opera House in New York City on May 2 of that year. E. C. Stedman read an address and Richard Watson Gilder a poem on that occasion. After several performances in other cities, she retired to her farm, near Los Angeles, Cal. At the time of her death she was at work on a volume of memoirs.

MOHAMMED V. (Turkish form, MEHMED.) Twenty-ninth Sultan of Turkey, succeeded to the throne on the deposition of Abdul Hamid II. on April 27, 1909. His name before his accession to the Sultanate was Mohammed Rechad, and he is the brother of Abdul Hamid. He was born on November 3, 1844. In 1876, when Abdul Hamid ascended the throne as successor to Murad V., his brother, who had been declared insane, Mohammed Rechad was placed by the former in a detached pavilion of the Yildiz Kiosk, and there he was kept, a virtual prisoner, for over thirty years. As his intercourse with the outside world was practically cut off during this period, naturally but little was known of his personal characteristics when he was made Sultan by the Young Turks. It was known, however, that while he was not notably strong in intellectual attributes, he was more liberal in his political views than Abdul Hamid. He is supposed to have kept in touch with the progress of affairs in Europe, and to have sympathized, to some degree, at least, with the aims and purposes of the Young Turks. See **ABDUL HAMID; TURKEY.**

MOND, LUDWIG. A German chemist, died December 11, 1909. He was born at Cassel, Germany, in 1839, and attended the Polytechnic School in his native town. From there he went to study chemistry at Marburg, and under Robert Bunsen at Heidelberg. His first contribution to industrial chemistry was the method for recovering sulphur which was lost as calcium sulphide in the black ash waste of the Leblanc soda process. In 1862 he went to England, where he obtained a post in large chemical works, where he worked out the practical application of his patent. He returned to the Continent two years later and erected an alkali manufactory on the Leblanc system at Utrecht. He returned to England in 1867, and thenceforth made it his permanent home. In 1872 he introduced into England the process, invented by Ernest Solvay, of utilizing a reaction whereby, without the intervention of sulphur in any form, carbonate of soda is produced by the action of carbonic acid on brine saturated with gaseous ammonia. In 1873 he entered into partnership with Sir John Brunner in the manufacture of alkali under this process. As a result of his invention, the process was made practical. Among other problems which he solved, was that of recovering the chlorine lost in the form of chloride of calcium, and in 1896,

as a result of his improvements, he rendered the ammonia process an effective competitor with the Leblanc process in the production of bleaching powder. He invented a system of producing power-gas, which is known by his name. Dr. Mond made many other successful and useful inventions in chemistry. He became wealthy and was a munificent benefactor of scientific research. He was a collector of pictures, and his gallery of old Italian masters came to be one of the most important of the newer collections in England.

MONSON, Sir EDMUND JOHN. A British diplomatist, died October 29, 1909. He was born in 1834, the third son of the sixth Baron Monson. He was educated at Eton and Oxford. In 1858 he was elected a fellow of All Souls' College, and ten years later was appointed examiner in modern languages for the Taylorian scholarships. He began his diplomatic career in 1856, when he joined the staff of the British Legation in Paris. In 1858 he was sent to Florence, then Paris and in the same year he became private secretary to Lord Lyons when the latter was appointed British Minister to Washington. During the Civil War he saw much of President Lincoln and became friendly with him. On his return to England he left the diplomatic service and attempted unsuccessfully to enter Parliament. For a short time he wrote for weekly publications, and was then appointed to the Consular corps, and was sent as Consul to the Azores. After three years of service there he was made Consul-General to Hungary, and during the Turkish War of 1876-8, he was sent to Dalmatia and Montenegro. Following this he was Minister-Resident in Uruguay until 1884, when he was appointed Minister Plenipotentiary to Argentina and Paraguay. He was soon afterwards sent to Copenhagen as Minister, and was transferred to Athens in 1888. While at Copenhagen he acted as arbitrator in the Butterfield claim, which arose from the detention of two American ships at St. Thomas, on the ground that they had contraband of war for Venezuela. He served for a short period as Minister to Belgium, and was then promoted to Ambassador to Austria, and in 1896 succeeded Lord Dufferin as Ambassador to France. He was British representative in France in the Fashoda troubles, and the speech which he made at that time created much indignation in France. His action in the controversy, however, did much to maintain peace. He was retired in 1904, when he was given the Grand Cross of the Legion of Honor. He became Privy Councillor in 1903, and was created a baronet in 1905.

MONSTIERS-MERINVILLE, MARY GWENDOLIN (CALDWELL), Marquise des. An American philanthropist, died October 5, 1909. She was born in Kentucky, and was the daughter of William Shakespeare Caldwell, who made a large fortune building gas works. She was educated at the Convent of the Sacred Heart, Manhattanville, N. Y. Her father was originally a Protestant, and had been converted to Roman Catholicism by Archbishop Spalding. He left his fortune to his two daughters, intrusting it to the care of Bishop Spalding, of Peoria, Ill. About 1889 Mary Caldwell attracted public notice by her engagement to Prince Murat, grandson of the King of Naples. The engagement was broken because she refused to settle

on him half her fortune. She donated \$300,000 to found a Catholic University at Washington, giving 88 acres of land on the outskirts of the city and erecting three of the university's largest buildings. In 1896 she was married in Paris to the Marquis des Monstiers-Merinville, by Bishop Spalding. The marriage was unhappy, and she separated from her husband after her health had broken down. In 1904 she renounced the Roman Catholic Church, and published a sensational statement about her decision. The Pope in special audience endeavored to persuade her to reconsider this decision, but in vain. Before her death she became paralyzed below the waist, and partially blind and deaf.

MONTANA. One of the Northwestern Division of the United States. Its area is 146,572 square miles. The population in 1909, according to a Federal estimate made in that year, was 333,695.

MINERAL PRODUCTION. The aggregate value of the mineral products in the State in 1908 was \$46,803,841, which was a marked decrease from the value of the product of 1807, \$60,663,511, and this in turn was a considerable decline from the value of 1906, which was \$74,126,567. The most marked decrease was in the value of the product of copper, which greatly increased, however, in the quantity mined. The comparative figures are as follows: 1908, 252,503,651 pounds, valued at \$33,330,481; 1907, 224,263,789 pounds, valued at \$44,852,758. Montana ranks first among the States in the value and amount of copper produced. The silver mined in 1908 also showed considerable decrease in both quantity and value, the respective figures being as follows: 1908, 10,356,200 fine ounces, valued at \$5,539,500; 1907, 11,129,600 fine ounces, valued at \$7,345,500. Gold was produced to the amount of 152,865 fine ounces, valued at \$3,160,000, as compared with 167,987 fine ounces, valued at \$3,479,600 in 1907. The product of coal shared in the decrease shown by other minerals. The product in 1908 was 1,920,190 short tons, valued at \$3,771,248, as compared with 2,016,857 short tons, valued at \$3,907,082 in 1907. Lead decreased in value from \$215,710 in 1907 to \$194,880 in 1908. Zinc was produced in 1908 to the value of \$84,600. No zinc was produced in 1907. The other mineral products of the State are inconsiderable. They include clay products, lime, precious stones, and tungsten.

The production of gold in 1909 was estimated by the Director of the Mint at 174,123 fine ounces, with a value of \$3,599,400. The silver production was 12,000,000 fine ounces, valued at \$6,241,900. This is an increase of 1,643,800 fine ounces over the production of 1908.

The production of copper showed a large increase in 1909 and the State again took first rank, a place lost to Arizona in 1907. The production of 1909 nearly equaled the State's previous record output of 314,750,000 pounds made in 1905.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 175,000 bushels, valued at \$150,000 from 5000 acres; winter wheat, 6,012,000 bushels, valued at \$5,230,000 from 185,000 acres; spring wheat, 4,752,000 bushels, valued at \$4,134,000 from 165,000 acres; oats, 15,390,000 bushels, valued at

\$6,464,000 from 300,000 acres; barley, 1,900,000 bushels, valued at \$1,197,000 from 50,000 acres; rye, 58,000 bushels, valued at \$44,000 from 2000 acres; potatoes, 4,500,000 bushels, valued at \$2,295,000 from 25,000 acres; hay, 995,000 tons, valued at \$9,950,000 from 556,000 acres; flaxseed, 120,000 bushels, valued at \$192,000 from 10,000 acres. The wheat crop showed an increase in 1909 over 1908, the production in that year having been 3,703,000 bushels. The oat crop in 1909 was considerably larger than that of 1908, which was 10,566,000 bushels, while the acreage increased from 254,000 to 300,000. The potato crop in 1909 was nearly double that of 1908, which was 2,760,000 bushels, while the acreage increased from 20,000 to 25,000 acres. The hay crop of 1909 was slightly smaller than that of 1908, which was 1,050,000 tons. The acreage in flaxseed increased from 9000 to 10,000 acres, while the product increased from 104,000 to 120,000 bushels. The improvements carried on in the State by the United States Reclamation Service in recent years has resulted in great improvement in agricultural conditions. The number of farm animals in the State on January 1, 1910 was as follows: Horses, 319,000; milch cows, 80,000; other cattle, 842,000; sheep, 5,747,000; swine, 75,000. The increase in dairy cattle has been large since 1900, and sheep and swine have also increased materially, giving the State second rank in the production of wool and number of sheep. The wool clipped in 1909 was 31,818,240 pounds.

EDUCATION. The report of the Superintendent of Public Instruction for the year 1908 showed a school population in 1907 of 73,269, of whom 36,895 were boys and 36,374 were girls. The whole number enrolled during the year was 50,516. The average daily attendance was 34,699. There was an increase in the number of children of school age and in the enrollment, but a decrease in the average daily attendance. There is serious need of an amendment to the compulsory school law, so that the two and a half mile limit shall not be a subterfuge for allowing children to remain away from school. The rural school problem is the most difficult in the educational administration of the State. In an area of 146,000 square miles there are but 916 school districts. The disbursements for education for the year ending August 31, 1907, amounted to \$2,396,122.

FINANCE. The report of the State Treasurer for the fiscal years ending November 30, 1907, and 1908 showed a balance on hand December 1, 1906, of \$840,941. The receipts for 1907-8 were \$6,343,012, while the disbursements for 1907 were \$3,087,105 and for 1908 \$2,691,790, leaving a balance on hand November 30, 1908, of \$564,116. The chief receipts were from the general fund, school income and from the permanent school fund. The chief expenditures were on account of the general fund, permanent school fund, school income fund, and the School of Mines permanent fund.

POLITICS AND GOVERNMENT. Following the example of the California Legislature, there was introduced into the Montana Legislature on February 16 a bill providing for the segregation of the Japanese and Chinese children in the public schools of the State, and another bill was introduced which provided that hereafter no alien should own or be in possession of realty in the State. By the provisions of this bill, aliens must dispose of their holdings before the expiration

of five years, under penalty of its sale under judicial proceedings, the amount realized to be at the disposal of the owner or assignee after one year. If uncalled for within that time the funds so derived may revert to the school fund. This was practically the same measure as that introduced into the California Legislature. The bills failed of passage. On February 16 an intermarriage bill was rejected by the Assembly. As noted below, measures were passed removing judicial elections from partisan politics. On February 15 a bill prohibiting race track gambling in the State passed the legislature. On April 6 a decree was issued in favor of the government in the equity suit between the United States and the Northern Pacific Railroad Company, the Rocky Ford Coal Company and the Northwestern Improvement Company. This suit was instituted on July 13, 1908, to cancel the patents issued for 1120 acres of coal land. The Northern Pacific Railroad Company held title to this land in the Mount Rainier National Park, created by Act of March 2, 1899. Section 3 of the act provided that the Northern Pacific Railroad might deed to the government any lands held by it within either this National Park or the Pacific Forest Reserve and select in lieu thereof an equal quantity of non-mineral lands. Pursuant to this provision the Railroad Company selected the 1120 acres of land in controversy and received the patents therefor. At the time of such selections these lands were classified as non-mineral lands. It developed later, however, that they were valuable coal lands. This suit was instituted to cancel the railroad's patent for the lands on the ground that they were valuable coal lands, their value being alleged to be more than \$100,000,000. See **ELECTORAL REFORM.**

OTHER EVENTS. On March 30, the last spike in the new trans-continental railway, the Chicago, Milwaukee and Puget Sound, was driven at Missoula. The total length of the new road is 2436 miles. (See **RAILROADS.**) A severe blizzard occurred in the State on January 11 and caused much suffering. The railroads found it difficult to move coal to northern points in the State, where the thermometer stood, in some places, at over 50 degrees below zero. The strike of the railway switchmen which broke out in November was severely felt in the State, especially in the large smelter works at Butte and Anaconda, which for a time were obliged to shut down. See **STRIKES.**

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: A measure passed providing for non-partisan judicial nominations. Lincoln's birthday and Columbus day were made legal holidays in the State. A measure was passed forbidding rebating and discrimination by life insurance companies, and measures were taken against tuberculosis and other communicable diseases. Operators of coal mines are made liable to employees in case of utter disability, regardless of the question of negligence. Measures were passed prohibiting to some extent trusts and monopolies.

OFFICERS: Governor, Edwin L. Norris, Democrat; Lieutenant-Governor, William R. Allen, Republican; Secretary of State, A. N. Yoder, Republican; Treasurer, Elmer E. Esselstyn, Republican; Auditor, H. R. Cunningham, Republican; Attorney-General, A. J. Galen, Republican; Adjutant-General, Philip Greenan, Democrat;

Superintendent of Education, W. E. Harmon, Republican.

JUDICIARY. Supreme Court: Chief Justice, Theodore Brantley, Republican; Justices, Henry C. Smith, Republican; William L. Holloway, Republican; Clerk, John T. Athey, Republican.

The State Legislature of 1909 was composed of 17 Republicans and 10 Democrats in the Senate, and 33 Republicans and 38 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

MONTENEGRO. A hereditary constitutional monarchy, constituting one of the Balkan States (constitution granted December 19, 1905). Area, 3486 square miles; population (diminished by emigration), 225,000 (Roman Catholics 14,000; Mussulmans, 13,000, the remainder Orthodox Slavs). Capital, Cetinje, population (1907) 5000, exclusive of a permanent garrison of 600. The Montenegrins belong to the Servian branch of the Slav race. Education is free and compulsory. The Greek Orthodox is the prevailing religion. A large portion of the country is uncultivable. Some small crops are grown for home consumption, and cattle are raised in large numbers (estimate of live-stock, 60,000 cattle, 500,000 sheep and goats, 3000 horses and 8000 swine). Tobacco (manufacture, sale, and export,) is a government monopoly. Coarse woollens are manufactured. The imports and exports in 1907 were valued at £261,000 and £56,000 respectively, against £240,000 and £81,000 in 1906. The first railway (Antivari to Lake Scutari) was opened in December, 1908; length, 11 miles. There are excellent highways. Length of telegraph lines, 528 miles. The revenue and expenditure were estimated (1907) at 2,980,000 and 2,888,893 Austrian kroner respectively. The public debt is stated at £70,000. The Austrian government contributes annually 20,000 kroner to cover part of the postal expenditure, and Russia gives £40,000 towards the military, educational, and hospital expenditure. The army is on a militia basis. The reigning sovereign is Prince Nicholas I., born October 7 (September 25), 1841; married, November 8, 1860, to Milena Petrovna Vucotich, daughter of Senator Peter Vucotich. The heir apparent is Prince Danilo Alexander, born June 29, 1871. The members of the National Assembly (Skupshtina) are elected by universal suffrage. Prime Minister, Minister of Justice and of Foreign Affairs, M. Tomanovich.

ARMY. The army is a militia in which every sound Montenegrin is liable for service from his 18th to his 60th year. There are maintained two battalions of infantry in which 400 recruits receive instruction for four months, two field and mountain batteries where 100 men receive instruction for six months, and likewise a similar engineer organization with the same period of instruction. On Sundays and holidays the militia receive military training and the number of men who have received military instruction has been estimated at 36,000 in infantry and 1200 artillery. On a war basis there would be formed 12 brigades, including 11 brigades of infantry with 58 battalions and 1 artillery brigade with 12 batteries, the total strength being estimated between 50,000 and 60,000. The artillery is provided with 48 mountain guns, 36 field guns, 44 siege guns, and 20 machine guns.

The chief question affecting Montenegro which arose out of the Balkan crisis of 1908, was the status of Antivari. Montenegro desired the repeal of Article 29 of the Treaty of Berlin and negotiations carried on with the Powers to that end during 1909 resulted in a satisfactory adjustment. See **BALKAN QUESTION**.

MONTSERRAT. A presidency of the Leeward Islands (q. v.). Area, 32 square miles; population (1901) 12,215. Chief town, Plymouth, 1461 inhabitants. There are 1000 acres under lime trees; sugar, cotton, coffee, cocoa, papain, arrowroot and lime-juice are the chief products. Preserves, jams, pickles, etc., are put up for export. Imports and exports in 1908-9 were £40,132 and £45,304 (Sea-Island cotton £13,325) respectively, against £32,750 and £35,183 in 1907-8. Revenue and expenditure, 1907-8, £10,233 and £8016; 1908-9, £10,950 and £9926. Public debt (1909), £11,100. Commissioner and Treasurer (1909), Lieutenant-Colonel B. Davidson-Houston.

MOOR, Sir RALPH DENHAM RAYMENT. An English public official, died September 14, 1909. He was born in 1860 and was educated privately. He served as district inspector of the Royal Irish Constabulary from 1881 to 1889. In 1892 he was appointed deputy commissioner and vice-consul in the Oil Rivers (Niger Coast) Protectorate and adjoining native territory. From 1892 to 1895 he was acting commissioner and consul-general and from 1896 to 1900 he was commissioner and consul-general of the Niger Coast Protectorate. In 1900 he was appointed high commissioner of Southern Nigeria and held this position at the time of his death.

MORAN, JOHN B. An American lawyer and public official, died February 6, 1909. He was born in 1860 and graduated at Boston University. He practiced law in Boston until 1906, when after a sensational canvass he was elected district attorney of Suffolk county (Boston) on a "reform" ticket. His attempts to enforce the so-called "blue-laws" against liquor selling in Boston made a remarkable sensation, and Moran was, for a time, almost a national figure. He was nominated for Governor by the Prohibitionists, the Independence League and the Democratic parties in 1906, but failed of election by 27,000 votes. His exertions in this campaign were the indirect cause of his death.

MORAVIANS, called also the UNITED BRETHREN (Unitas Fratrum) and the MORAVIAN CHURCH. An evangelical denomination which had its beginning in Bohemia and Moravia, among the followers of John Huss. It was established in America in 1735 in Georgia, where a colony of Moravians had settled, but five years afterward removed to Pennsylvania, where they built the towns of Bethlehem and Nazareth. The Moravians had at the beginning of 1909 a total number of 17,951 communicants, of whom the American Moravian Church North included 13,932, and the American Moravian Church South, 4019. There were 122 churches and 141 ministers. In the Northern Province there are 40 missionary societies with a membership of 3984. In the Sunday schools of the church there were at the beginning of 1909, 14,379 scholars, and 1529 officers and teachers. Funds were maintained for retired ministers and widows of ministers. The church sustains missions in Africa, Alaska, Asia, Australia, Labrador, Nicaragua, South America, West Indies and Bohemia. A

Home for Lepers is supported in Jerusalem. Among the educational institutions under the auspices of the Moravians are the Moravian College and Theological Seminary at Bethlehem; the Moravian Parochial School for Boys, the Moravian Seminary for Girls, both at Bethlehem, Pennsylvania; Linden Hall Seminary for Girls at Lititz, Pennsylvania; an Academy for Girls at Salem, North Carolina; and the Nazareth Hall for Boys at Nazareth, Pennsylvania. The English official organ of the Church is *The Moravian*, and the German official organ is *Der Bruecker Botschafter*. The Provincial Synod of the American Moravian Church North was held at Lititz, Pennsylvania, in September, 1908. The next Synod of this branch will be held in 1913. The General Synod of the Church throughout the world was held at Herrnhut, Saxony, Germany, in June, 1909.

MORFILL, WILLIAM RICHARD. An English scholar, died November 9, 1909. He was born about 1830 and was educated at Oriel College, Oxford, where he graduated with a first class in classics in 1855, and in 1889 became reader in Russian and other Slavonic languages. He was raised by decree of the University to the rank of professor in 1900, and was appointed curator of the Taylor Institute. His important works on Slavonic literature, language and history include grammars of Polish, 1884; Serbian, 1887; Russian, 1889; Czech, 1898, and Slavonic Literature, 1883; *Story of Russia*, 1891; *Story of Poland*, 1893; and *A History of Russia from the Birth of Peter the Great to Nicholas II.*, 1902.

MORGANSTERN, LINA (BAUER). A German social reformer, died December, 1909. She was born at Breslau in 1830, the daughter of a merchant of that city. After a course in the common schools at Breslau and study at home, she became the wife of Theodor Morganstern, a physician. She early took an interest in sociological problems and formed a league to aid the poor school children of Breslau when she was but eighteen years old. Shortly after her marriage she formed a league to improve the condition of workmen, and at this time founded also the Berlin Kindergarten Association, of which she afterwards became the president. The domestic distress that followed the war of 1866 led her to found the Berlin Public Kitchens, which proved to be the most notable of her economic achievements. These kitchens, which aimed to provide food for the poor, were immediately patronized by thousands, and they still continue to provide the means by which many of the poor inhabitants of Berlin are enabled to live. The plan of these kitchens was followed out in other large German cities. After three years spent in charge of these kitchens she founded the society for the protection of illegitimate children. She also brought into existence an academy for the instruction of young women who wished to learn the useful arts, the Berlin Workingwomen's Union and the Berlin Housekeepers' Union. The great rise in the price of food following the Franco-German War resulted in the founding of the last named society, which is still active and issues a magazine devoted to its interests. In addition to her work as a reformer in economic matters, Frau Morganstern was the author of many popular children's stories. She wrote also vari-

ous books connected with her philanthropic enterprises. She first awakened in the inhabitants of Berlin in her generation a desire to improve by economic aid the condition of the less fortunate.

MOROCCO. An independent Mohammedan empire in northwestern Africa. The area is estimated at 234,000 square miles; the population at about 8,000,000. A more recent estimate of the population, however, is between 4,340,000 and 4,580,000, the principal details being: Coast region, Tangier to Magador, 2,200,000; Atlas-Riff region, 1,500,000; Mulaya Valley, 200,000; Wad Draa, 100,000 to 250,000; Wad Ziz (with Taflet), 120,000 to 200,000. The inhabitants are chiefly Berbers, Bedouin and Mued Arabs and Tuaregs, and belong to the Malekite sect of the Sunnite Mohammedans. The Christian population amounts to only a few thousands, almost entirely in Tangier or other coast towns. Three cities are recognized as capitals of Morocco: Fez, with an estimated population of 140,000; Morocco, 50,000; Mequinez, 25,000. The principal port is Tangier, with about 55,000 inhabitants (10,000 foreign). Other towns, all on the coast, are: Rabat, 35,100 (100 foreign); Casablanca, 33,000 (8000 foreign); Mogador, 30,800 (800 foreign); Tetuan, 20,300 (300 foreign); Mazagan, 15,400 (400 foreign).

INDUSTRIES AND COMMERCE. The principal industries are agriculture and live-stock raising. The mineral resources are undeveloped. There is a limited manufacture of carpets and slippers. The principal crops include cereals, pulse, esparto, hemp and fruit. As complete records of the foreign commerce are not kept, only estimates, based on various data and approximating more or less to accuracy, can be made. For 1908 the total import value was placed at about \$12,305,000, and export value \$10,376,000. The share of Great Britain was stated at \$4,998,000 for imports and \$3,198,000 for exports; France and Algeria, \$4,397,000 and \$1,904,000, respectively; Germany, \$367,000 and \$1,603,000. The principal articles of import include rice, woollens, cottons, silks, tea, wines and spirits, sugar, candles and metal wares. The principal articles of export, in 1907, are stated as follows: Barley, \$2,150,000; hides and skins, \$966,000; eggs, \$828,000; wheat, \$801,500; almonds, \$491,500; beef cattle, \$459,000. Morocco has no railway.

ARMY. The regular army is composed of approximately 25,000 men, recruited from the various tribes, and composed of those between the ages of sixteen and sixty who have not purchased exemption, and for whom substitutes are not provided by the tribes. Each tribe furnishes one "Tabor," which should be composed normally of 500 men, and is named after the tribe. The most of the Tabor of the standing army are infantrymen only, but some contain mounted men and other foot artillery, the latter being a privileged class and numbering between 800 and 900, distributed at the capitals and sea coast towns. The field artillery numbers about 4000 cannoners organized into two Tabors of extraordinary strength, and composed mainly of the Muchazina, the national military police. There are forty Tabors of infantry, each divided into five divisions. There is little organization in the army and it is far from being a homogeneous whole. The rifle is the Martini-Henry,

and the field artillery have about ten batteries of modern European field (Schneider), mountain (Krupp) and machine (Maxim) guns. European instructors, mostly French, have been employed, but they have brought little military efficiency to the army. The militia was composed of from 25,000 to 100,000 men, and was estimated of greater value than the regular army.

GOVERNMENT, ETC. Morocco is an absolute monarchy, with the Sultan nominally supreme in matters both civil and religious. His real power, however, depends largely upon circumstance and his own character. The Sultan in 1909 was Mulai-Abd-el-Hafid, who dethroned his brother, Mulai-Abd-el-Aziz. He was proclaimed Sultan at Morocco City, August 25, 1907; at Fez, January 4, 1908, and at Tangier, August 23, 1908, and was recognized by the Powers January 5, 1909. The annual customs revenue is estimated at about \$2,000,000. Further revenue accrues from internal taxes, which are often simply extortion, and from monopolies. The public debt includes French loans aggregating about 66,000,000 francs. The Sultan has about 3000 infantry and a guard of 2000 to 3000 negro cavalry. There is also a sort of mounted police, numbering perhaps 8000 or 10,000 men, and a few unorganized batteries of artillery, with about 600 men. In addition, there can be mobilized for active service about 40,000 irregulars, foot and horse. See foregoing paragraph.

HISTORY.

THE FRENCH OCCUPATION. Early in the year the situation in Morocco was changed by the recall of General d'Amade and the partial evacuation of Casablanca. The French did not feel warranted in the complete withdrawal of their troops, as the police organization was not complete and there was no guarantee for the preservation of order in the country. To withdraw the entire army of occupation might result in the return of conditions which France had made such heavy sacrifices to remove. Formal violation of the act of Algceiras through the intervention of France in Morocco had now been going on for more than a year with the tacit consent of the European Powers, and it was unlikely that they would protest if France continued to maintain a partial military occupation. General d'Amade was received in France with enthusiasm and decorated with the military medal, the highest honor that can be won by an officer. He was plainly the hero of the war, and was contrasted in the public press with his predecessor, General Drude, whose dilatory tactics won for him the nickname of "Drudus Cunctator." Early in May the French Minister, M. Regnault, was sent on a mission to Fez for the purpose of coming to an understanding with Mulai Hafid. All difficulties with Germany were apparently removed by a definite settlement between the two Powers in regard to Morocco which was signed on February 9. (See FRANCE, paragraphs on History.) The award of the Hague Tribunal in the affair of the Casablanca deserters was rendered on May 22. This blamed the German Consulate for exceeding its jurisdiction in trying to protect the German deserters, but disapproved the action of the French in not respecting the *de facto* protec-

tion by the Consulate as far as possible, for threatening the Consul with a revolver and for maltreating the Moroccan soldiers of the Consulate. There was a tendency in the press at first to applaud the energy and ability of Mulai Hafid, who was said to be progressive and favorably inclined toward the Europeans, but as time went on these opinions gradually changed. The Moroccan mission under El Mokri for arranging terms with France and also, it was said, for the placing of a loan was received by the French government on May 26. These negotiations, however, were prolonged throughout the year, and greatly tried the patience of the French authorities. The points at issue were still unsettled in November. In that month the French Foreign Minister, M. Pichon, declared that France must insist that some satisfactory arrangement be made and that the negotiations had already gone on too long. (See FRANCE, paragraphs on *History*.) At the same time the dilatory course of the Sultan had in a nearly equal degree tried the patience of Germany, which finally presented what amounted to an ultimatum, demanding payment of German creditors. Great Britain refused the Maghzen's proposal of a Moroccan mission, and the tone of the dispatches from Spain was very severe. There was evidence that the Powers were in complete accord in insisting upon their demands against Morocco. The French demands were for the reimbursement of their military expenses in the Shawia and on the Algerian frontier and reparation for offenses against the lives and property of French citizens. France refused to evacuate the Shawia and Casablanca until her demands were met. At the end of April it was announced that the French force in the Shawia region was to be cut down to 3000 men.

THE SULTAN'S DOMESTIC FOES. During the year Sultan Hafid was repeatedly engaged in conflicts with the tribesmen. Raisuli was apparently placated, having been appointed governor of some twelve tribes in the north. Bu Hamara, the pretender, was the chief cause of trouble, and his campaigns were at first attended with some success. He was reported to be encamped near Fez early in March. On April 21 Mulai Hafid's troops were defeated by Berbers and left a number of guns in the hands of the enemy. A little later two strong divisions of the Sultan's troops were sent against the Beni Mtir tribesmen, and by the close of May, after some sharp fighting, succeeded in gaining possession of the chief strongholds of the tribesmen. At that time the latter sent a deputation to the Sultan, who pardoned the tribe. On March 7 the Sultan's troops defeated one of the Berber tribes, the Ait Yussi, killing and capturing many of them and destroying several villages. Shereef Kittani, a descendant of the former dynasty, showed signs of disaffection and was thrown into prison. According to the confessions of a number of his followers, all had been made ready for his proclamation as Sultan. As a result of his treatment in prison he died on May 4. On June 15 the Sultan's troops were defeated by Bu Hamara about eight miles from Fez, and the latter was said to be ravaging the country in the vicinity. In August, however, the defeat and capture of Bu Hamara was definitely announced, and it was reported

that he and his followers had been taken to Fez, where special refinements of torture were devised by the Sultan himself. Meanwhile there had been many complaints of the Sultan's arbitrary and despotic government. Many of the people were thought to be not unwilling to see him defeated. There were signs of disaffection among the troops owing to his failure to pay them, and the European instructors in the army were not paid. Reports of the Sultan's cruelty were frequent and were the subject of complaints by the Europeans. He was reported to be at odds with his Viziers, who, however, afterwards were reconciled with him. The Europeans also complained of the Sultan's delay in carrying out Article 60 of the Algeciras act, which permitted the purchase of lands by Europeans. The Sultan's excuse for this was the primitive condition of the country's institutions and the danger of proceeding rapidly in making this change. Apart from the grounds of protest mentioned in the preceding paragraph, the Europeans were especially disturbed by the frequent reports of cruelty. The torturing of the prisoners of Bu Hamara caused a protest from the British Consul at Fez and the French Consul at Tangier in August and the Sultan was formally requested by the latter to observe the laws of humanity. The consular body at Fez visited Mulai Hafid on September 11 and presented a collective note against the cruelty practiced on El Rhogi's followers. The Sultan replied to the effect that he had supposed that he was inflicting mild punishments in depriving prisoners of their limbs rather than of their lives, that the country was half civilized and could not use European methods, but that he hoped the occasion for punishment would not arise again. The pretender, who was at first said to have been executed, was afterwards reported to be still alive, but confined in a cage. Fighting was reported on August 12 between Raisuli and the Benadiris with considerable losses on each side. The British mission was received by the Sultan on April 17. Meanwhile the Spanish Minister had entered Fez on March 8. The Southern Kaids acknowledged the Sultan's authority and were received by him in Fez on May 15.

SPAIN'S MOROCCAN CAMPAIGN. The most important feature of the year was the war of Spain against the Riff tribes in the region of Melilla. This part of the country was under the protection of El Roghi. Early in 1908 certain Spanish mining companies had begun work about fifteen miles from Melilla, but in October of that year the tribesmen revolted and raided the mines, which shut down. Spanish military posts were established at two points in that region, and, order being apparently restored, the mines resumed work at the beginning of June, 1909. The Moors attacked the mines and killed a number of the workmen. The Spaniards retaliated by a counter attack, in which they chased the enemy for a considerable distance and inflicted a heavy loss, losing on their own side a small number. Reinforcements were sent from Spain. In July a fierce attack on the Spaniards was made and a considerable number were killed. At that time the Moors outnumbered the Spaniards, but measures were taken in Spain for rapid reinforcement. In a battle at Melilla on July 23, in which it was estimated that

15,000 or 16,000 Moors were engaged, the Spaniards suffered heavily, losing 300 killed, including many officers. The Moors having destroyed part of the railway, two Spanish columns were sent against them at the end of July and again sharp fighting took place, resulting in serious Spanish losses, estimated at 200, including General Pintos and other officers. The number of the Spanish wounded was estimated at 800. The battle occurred along the railway in a rocky and mountainous tract of country which was intersected with ravines. Owing to the unevenness of the ground and the density of the undergrowth, observation was difficult, and the Spanish column ran into an ambush and encountered a murderous fire at close range. There were many instances of gallantry on the part of the Spanish troops, who made a number of bayonet charges. Early in August the troops in and around the old fortress at Melilla numbered about 24,000, under the command of General Marina. The promontory on which the town was situated was well adapted for defense. Besides the old fortress there was a ring of blockhouses and forts, which seemed, when competently equipped, able to stand against any infantry attack. To the west lie the two peaks of Gurugu, divided by a deep gorge, and to the east is the land-locked sea called Mar Chica. Some fighting occurred on August 9 at the Spanish fort near Ceuta, but the Moors were repulsed with loss. Fighting occurred also on August 18, but without serious loss to either side. The fortress at Melilla was reported at that time to be practically impregnable, and the Spaniards, feeling secure in their position, planned an advance. The advance movement of the Spaniards on September 20 resulted in giving them control of the peninsula. The Spanish casualties were nineteen killed including three officers, and 106 wounded including thirteen officers. Zeluan was captured by two columns under General Marina. By October 1 it seemed that the Spanish success was assured. In October the Moors attacked the Spanish positions at Zeluan and Nador, but were easily repulsed. Soon after the Riffs asked for a suspension of hostilities in order that they might confer with Mulai Hafid as to the terms of an adjustment. The objects of the campaign being practically attained, Spain was now ready to concede the terms of settlement. Negotiations between the tribesmen and an envoy of Mulai Hafid were going on in November with favorable prospects for the conclusion of the war. The beginning of the Moroccan war was marked in Spain by a serious revolt in Barcelona. When the troops were sent to the front, crowds collected at the railway stations, women attempted to detain the troops ordered to the front, and many demonstrations were made against the war. The riot at Barcelona occurred on July 27 and resulted in the killing of eleven persons and the wounding of fifty, in the making of wholesale arrests and in the placing of the disaffected districts under martial law. (See SPAIN, paragraphs on *History*.) France had shown sympathy with Spain in her Moroccan campaign. Cordial feeling between the two countries was enhanced in the latter part of the year by the dispatch of a military delegation from the Oran

division of the French army to Melilla to honor the Spanish soldiery who had fallen in battle and by the restoration to the Spaniards of property which had fallen into the hands of the French. Toward the end of November delegates of the tribesmen were in conference with the Spanish General Marina. Meanwhile it was announced that the Moors of Nador had unconditionally submitted, and many of the tribesmen were now coming to terms. An advance of the Spaniards, achieved without casualties, was regarded as the last act in the military campaign, and by November 30 the war was declared to be over. See ARBITRATION, INTERNATIONAL.

MORRIS, MARTIN FERDINAND. An American jurist, died September 12, 1909. He was born in Washington, D. C., in 1834, and graduated from Georgetown University in 1854. He pursued philosophical studies with the intention of becoming a Jesuit priest, but was obliged, to support dependent relatives, to enter the law. He was counsel for John H. Surratt, accused of being one of the conspirators for the death of Lincoln, and secured the acquittal of his client. He was appointed by President Cleveland to the Court of Appeals of the District of Columbia, and he retired in 1905 as Chief Justice.

MORRISON, WILLIAM RALLS. An American lawyer and public official, died September 29, 1909. He was born in Monroe County, Illinois, in 1825, and was educated at McKendree College. He served throughout the Mexican War and at its close he went, in 1849, to California, but returned to Illinois in 1851, where he was admitted to the bar. In 1852-4 he was clerk of the Circuit Court of Monroe county. From 1854 to 1860 he was a member of the State Legislature and Speaker in 1859-60. At the outbreak of the Civil War he was one of the first to enlist, and organized and was colonel of the Forty-ninth Illinois Volunteers. He was wounded at Fort Donelson and was left for dead on the field, but recovered in a Confederate hospital. In 1863 he was elected a member of Congress and was again elected to Congress in 1873, serving until 1887, and from 1875 to 1877 he was Chairman of the Committee on Ways and Means. His most important work in Congress was the introduction in 1884 of the tariff bill, known as the "horizontal" or Morrison Tariff Bill. In 1886 he was defeated for reelection to Congress. In 1885 he was defeated for the United States Senate in the Illinois Legislature by John A. Logan. From 1887 to 1897 he was a member of the Interstate Commerce Commission, being chairman from 1891. Colonel Morrison was one of the strongest figures of the Democracy when he was active in politics. His famous tariff bill was defeated by only four votes, with the assistance of Democrats.

MOTOR BOATING. See YACHTING and MOTOR BOATING.

MOULTON, JAMES EGAN. An Austrian educator and missionary of the Methodist Episcopal Church, died in June, 1909. He was born near Newcastle, England, in 1841, and went to Tonga as a missionary about 1864. In 1889 he was chosen president of Newington College at Sydney, N. S. W., in which position he remained for many years. Dr. Moulton's great work was the translation of the Bible into the Tonga tongue, a task

which occupied him about twenty-five years. He also compiled other volumes in that language.

MOZAMBIQUE. See **PORTUGUESE EAST AFRICA.**

MUNICIPAL GOVERNMENT. During the past few years the United States has been converted into a vast proving field for various theories of municipal government. Reduced to practice, these theories have turned into such markedly contrasting systems as: (1) The commission plan, in which the mayor and council are merged into a virtual board of directors which exercises all legislative and executive functions; and (2) the most complete separation between the powers and duties of the mayor and council and an equally complete separation of executive and legislative functions. Again, we see the very small, single-bodied council being tried in one city, while in another a very large council of one or two bodies is being continued or newly established. Still again we have as intermediate between the mayor and council in some cities an administrative and budget-making body, like the Board of Estimate and Apportionment in New York City. Or, shifting from a broad view of the theory and framework of municipal administration as a whole, we see such contrasting plans for gauging municipal efficiency, checking extravagance or detecting corruption and fraud as the Commissioners of Accounts in New York City, appointed by and responsible to the mayor, and the newly-created Finance Commission in Boston, appointed by the Governor of the State and with authority to report findings and recommendations to him, to the State Legislature, to the mayor or to the council of Boston. In a wholly extra-legal way we see like investigations being carried on effectively by bureaus of municipal research, city clubs, civic associations and committees of chambers of commerce or of merchants' associations. Besides all this, the municipal ferment of the day includes experiments with direct primaries for the nomination of municipal officials; the abolition of all party caucuses, conventions and primaries and the substitution of nomination by petition; election by pluralities giving place to requirements of clear majorities, and failing such, either a second election or a system of preferential voting, under which each voter indicates his second choice, third choice, etc.; abolition of party symbols, columns or other means of party identification on ballots and arrangement of all candidates for each office in alphabetical order; the "short ballot," or a reduction in the number of elective officers, secured by appointing instead of electing executive officers other than the mayor by reducing the size of city councils, and by separating city from State and national elections; choosing councilmen at large, or by the vote of the entire city, instead of by wards; the recall, or compelling any elected official to stand for reelection on petition of a certain percentage of the voters; the initiative and referendum, by means of which the people can either propose legislation and bring it to vote or be insured of an opportunity to vote on all ordinances which originate in the city council; and last but not least, the cities of a few States have gained considerable freedom from legislative domina-

tion, chiefly by power to frame their own charters.

THE COMMISSION PLAN. Primarily the commission plan of city government, as applied to Galveston, Texas, in 1901, had as its notable feature the placing of all the affairs of the city in the hands of five men. As the plan was adopted elsewhere there was associated with it one departure after another from the old-time ideas of municipal government until now it frequently includes either direct primaries or else nomination by petition and the abolition of the party system, together with the election of the commissioners or councilmen by wards; the initiative, the referendum and the recall; and very stringent provisions for the granting of franchises to public service corporations. While all these accessory features have gradually come to be regarded as integral parts of the commission plan and are in a measure necessary safeguards against the abuse of the supreme power vested in the commission or council, yet they are found in cities which have not adopted the commission plan, and are perhaps quite as practicable in one case as in the other. It is difficult to learn just how many cities have adopted the commission plan on any given date, so frequent are the elections for its approval or disapproval. The following list of fifty-eight cities, arranged in geographical order, has been compiled from various sources. It probably includes nearly all the cities that had adopted the commission plan up to the close of 1909, but neither its completeness or accuracy can be vouched for:

Chelsea, Mass., Gloucester, Mass., Haverhill, Mass., Bluefield, W. Va., Huntington, W. Va., Charlotte, N. C., Bristol, Tenn., Clarksville, Tenn., Memphis, Tenn., Richard City, Tenn., Burlington, Ia., Cedar Rapids, Ia., Des Moines, Ia., Keokuk, Ia., Anthony, Kan., Coffeyville, Kan., Hutchinson, Kan., Independence, Kan., Kansas City, Kan., Leavenworth, Kan., Parsons, Kan., Topeka, Kan., Wichita, Kan., Sioux Falls, S. D., Bismarck, N. D., Grand Forks, N. D., Mandon, N. D., Minot, N. D., St. Joseph, Mo., Austin, Tex., Beaumont, Tex., Corpus Christi, Tex., Dallas, Tex., Dennison, Tex., El Paso, Tex., Fort Worth, Tex., Galveston, Tex., Greenville, Tex., Houston, Tex., Marshall, Tex., Orange, Tex., Palestine, Tex., San Antonio, Tex., Sherman, Tex., Waco, Tex., Ardmore, Okla., Enid, Okla., Sapulpa, Okla., Tulsa, Okla., Colorado Springs, Colo., Grand Junction, Colo., Roswell, N. M., Tacoma, Wash., Boise, Idaho, Lewiston, Idaho, Berkeley, Cal., Riverside, Cal., San Diego, Cal.

Sixteen States are included in the foregoing list. In addition it is reported that the commission plan has been authorized for more or less extensive adoption in Mississippi, Michigan, Wisconsin and Oregon, making twenty States in all. In some States the authorization applies to one or more specified cities, while in others it extends to all cities of one or more classes. A commission plan charter has been drawn for Buffalo, N. Y., and at the November election of 1909 the people voted in favor of asking the legislature to enact such a charter. A similar vote was recorded at Mt. Vernon, N. Y., at the same time. Several cities voted down the commission plan when first presented, but adopted it on a second vote. The most notable instance of this sort was Kansas City, Kan., which defeated the plan by 822 majority in

1908, but adopted it by a much larger majority in 1909. Cities reported as having voted no without reversal as yet are Davenport and Sioux City, Ia., Mankato, Minn. (only 24 negative majority), Winfield, Kan., and Portland, Ore. (5740 majority against in a total vote of 15,612). Under the Kansas State law the larger cities have five commissioners, as is usual elsewhere, but the smaller cities have only three. The smaller number appears to be unusual. It was proposed as an alternative and voted down at the adoption of the commission plan by Grand Junction, Colo., in 1909, but Colorado cities enjoy the privilege of framing their own charters. In Kansas each commissioner must give a bond in the sum of \$10,000 to protect the city from financial loss on account of his incompetence, neglect or dishonesty. A marked variation in the Houston commission is the veto power possessed by the mayor over the acts of the commission or council of which he is a member. As a rule the mayor takes one of the commissionerships or heads of municipal departments. In Grand Junction, Colo., the various candidates are nominated for specific commissionerships, but elsewhere it appears to be the practice of the commission to elect its members to various commissionerships. References to other features of government of some of the commission-plan cities are given below.

MUNICIPAL HOME RULE. In many States municipal affairs are subject to legislative control down to the minutest detail of such purely local matters as salaries paid to subordinate executive officials and the procedure to be followed in opening or grading a street. The slightest change in local administrative measures, under such conditions, can be made only after obtaining specific legislative sanction. Such petty meddling with local matters is not practiced by all legislatures, but as a rule there is nothing but public opinion to prevent it, although many legislatures have been prohibited from special legislation or the passing of acts applying to a single city. Beginning in 1875, the constitution of Missouri was amended so as to enable St. Louis and Kansas City to frame and amend their own charters. California, Oregon, Washington, Minnesota, Colorado, Oklahoma, Michigan and other States have since given some or all of their cities varying degrees of power to make charters to suit local ideas. The Michigan constitutional amendments of 1908 not only gave this power to the cities of that State, but also went farther and authorized the legislature to delegate its own powers to the municipalities except as limited by the constitution and by general statutes. It was left to the legislature, also, to outline the general character of home-made city charters and the powers of municipalities thereunder, together with the charter-making and amending procedure. But the constitutional amendments seem to be broad enough and at the same time specific enough to give the cities of Michigan a much greater measure of local self-government than has ever been enjoyed by the cities of any American State before. This opinion may require modification after the new plan has stood the test of time, the courts, and the possible attempts of the legislature to interfere in local affairs through its powers of general legislation. The necessary legislative act to make the constitutional amendments effective was passed in

1909. Among other things it provides that home-made charters must be approved by the Governor of the State before they become effective. This was considered necessary on account of the delegation of State legislative powers to local bodies. The constitutional amendments, a digest of the State legislation which puts them into effect and a critical analysis of both are given in the 1909 *Proceedings of the National Municipal League*.

CHANGES IN THE OHIO MUNICIPAL CODE. In striking contrast to the home rule granted to Michigan cities in 1908 and 1909 is the legislative control still exercised in Ohio. But present conditions in Ohio are a vast improvement over what they were in 1902. Up to that time there was virtually special legislation for each city. A constitutional prohibition against special legislation was evaded by adopting a minute classification of cities according to population. This was declared illegal in 1902, and for a time Ohio cities had only a *de facto* government. A special session of the legislature enacted a municipal code which divided all incorporated municipalities into two classes, those above 5000 being made cities and those below villages. A uniform system of government for all places in each class was provided. The abolition of minute classification and the prevention of further special legislation were in many respects highly advantageous, but the new form of government was a backward step for such of the municipalities as were enjoying a fairly clear-cut separation of legislative and executive functions, with highly centralized executive power vested in the mayor. Cleveland was in that class and was forced back into the old mixed system, with an elective board of public service consisting of three or five members, and a bi-partisan board of public safety of two or four members, appointed by the mayor. There was a division of responsibility between the boards, the mayor and the council. By recent amendments the executive powers and responsibilities of the mayor are increased, and he appoints a single director of public service and a single director of public safety to displace the old boards. The mayor also appoints the heads of the sub-departments under these two directors. The director of public service has charge of all public works and undertakings, and the directory of public safety is in charge of the fire, police, charity, correction and building departments. The mayor and the two directors form a board of public control, which awards all contracts in excess of \$500. Civil service provisions of the amended code include a commission of three members, appointed by the presidents of the boards of education, sinking fund commission and the council; also a classified and unclassified service. Village councils consist of only seven members, but city councils are larger, particularly in the more important cities, for they are elected partly by wards and partly at large.

CHARTER REFORM. Aside from the commission-plan charters no changes in the framework of city government have been more radical than the amendments to the charter of Boston, made by the State Legislature of 1909. See **ELECTORAL REFORM** and **MASSACHUSETTS**.

Commission-plan charters framed on the home rule plan and adopted by popular vote at Berkeley, Cal., and Grand Junction, Colo., may per-

haps be taken as typical of the most advanced charters of this type. The Berkeley charter commission was headed by President Benjamin Ide Wheeler of the University of California. It had as another member Mr. William Carey Jones, professor of jurisprudence in the same institution. Under the Berkeley charter all nominations are by petitions, which require only twenty-five signatures. A majority of all the votes cast is required for an election, failing which the first election becomes a primary so far as the unfilled office is concerned, and a second election is held three weeks later to decide between the two highest candidates. The ten elective officers are a mayor, an auditor, four councilmen and four school directors, elected at large. The mayor is also a member of the council, and the councilman who becomes commissioner of finance and revenues is a member of the board of education. The mayor is paid \$2400 a year; the other four councilmen \$1200 each. School directors receive \$5 for each regular meeting attended, but not over \$15 in any one month. The mayor and auditor are elected for two years and the other eight officers for four years each, two places in each body becoming vacant yearly. The four councilmen elected as such are chosen by the whole council to serve, respectively, as commissioners of finance and revenue, public health and safety, public works and public supplies. The council elects a city clerk, assessor, treasurer, collector, attorney, engineer, chief of police, fire chief, street superintendent, health officer, and also five library trustees, and may create and fill other offices or consolidate two or more existing offices at any time. Any appointed officer is subject to removal by the council. Any elected officer is subject to the recall on petition signed by 20 per cent. of the number of votes cast at the last mayoralty election. Any citizen or body of citizens may frame an ordinance and submit it to the city council, provided the proposed ordinance is accompanied by a petition signed by at least 5 per cent. of the number of votes cast at the last election. In such an event the council must either enact the ordinance or refer it to popular vote. If the percentage of signers is fifteen, then a special election may be demanded. Referendum votes, or popular notification, may be required by proper petition, on ordinances originating in the council. Franchise grants are subject to stringent conditions and must be awarded to the highest bidder after public advertisement. Eight hours constitutes a day's labor for both city and contract work.

The home-drawn commission-plan charter of Grand Junction, Colo., adopted in September, 1909, provides for only five elective officers, to serve for four years at a salary of \$125 each per month. These officers are nominated by twenty-five petitioners. The ballots call for second, third, etc., choice, so that if no candidate receives a majority over all others as first choice, second choice, etc., votes may be added until a majority results. At the election held in November, 1909, there were six candidates for mayor. The man who had the plurality of votes (603) under the ordinary plan was fourth under the preferential plan (739 votes). The successful candidate, whose name came last on the alphabetically arranged list, was third on first choice (362 votes), but on adding second and third choice votes he

received a total of 1051 votes. Contrary to what appears to be usual practice, the Grand Junction charter requires that the five councilmen shall be nominated and elected to the specific commissionerships which they are to hold as department heads, and at the same time gives some of the councilmen several executive offices. The commissioner of public affairs is mayor, head of the police and fire departments, supervisor of all privately owned public utilities, judge of the municipal court unless otherwise provided by ordinance, and has other responsibilities as well. The commissioner of finance and supplies is also city collector, city treasurer and purchasing agent for all departments. The commissioner of highways has charge of streets, ditches, and public buildings. The commissioner of health and civic beauty is *ex-officio* city clerk and auditor, inspector of weights and measures, has charge of parks, shade trees, and the "architectural beauty" of the city. The commissioner of water and sewers appears to have his hands full with the duties indicated by his title. The charter abolishes wards and saloons. Eight hours constitute a working day and \$2.50 the wage of all day laborers unless otherwise determined by council, but these provisions do not apply to paving and water works extensions (no substitute given). The charter prohibits carrying out paving, sewerage or water works extensions or new construction by contract. A peculiar provision is that save the five elective officers all other men who serve the city must be called employees, including, it appears, the city attorney and the health officer. Religious or political opinions or political service are to have no effect on appointments or removals. Municipally owned public utilities must show by proper accounts whether they result in profit or loss to the city. These accounts must include allowances for interest, depreciation, insurance and lost taxes on the one hand, and for services rendered to other city departments on the other hand. Sweeping provisions for municipal ownership are made and careful regulations for franchise grants are provided. A civil service commission must be created by January 1, 1913.

A charter revision committee submitted a new charter for New York City to the State Legislature of 1909, but the proposed charter was referred to a legislative committee for investigation between the 1909 and 1910 sessions. The commission provided for many radical changes in the existing charter and for its curtailment and simplification. Besides this, many purely local administrative features were embodied in an administrative code in the hopes that the charter proper would by this means require less frequent and extensive amendment than heretofore. The code was longer than the charter, but the two combined were much shorter than the old charter.

At St. Louis, Mo., a charter revision commission, legally known as the Board of Freeholders, was created in 1909 under the home rule provision of the State constitution. It held two public hearings during each week from April to December, after which it began to draft a new charter, for submission to popular vote in 1910.

The Bureau of Municipal Research continued its work of investigating administration efficiency and of establishing accounting reform

in New York City in 1909. Similar bureaus were at work during the year in Philadelphia, Cincinnati and Memphis, and special studies by members of the staff were made in Buffalo and Chicago. The work done is extra-legal, and its cost is met by voluntary private contributions.

MUNICIPAL ACCOUNTING reforms were continued during 1909. A notable achievement in this field was the publication of a "Manual of Accounting and Business Procedure for the City of New York," by the department of finance of that city, under the direction of Mr. Herman A. Metz, comptroller. The "Manual" is based on several years' work of the Bureau of Municipal Research. Information regarding the progress of uniform municipal accounting and on the art of municipal accounting itself is given in the reports on "Statistics of Cities," published yearly by the United States Bureau of the Census.

Important books on municipal government published during 1909 included Deming's *The Government of American Cities* (New York); Goodnow's *Municipal Government* (New York); Munro's *The Government of European Cities* (New York); Merriam's *Primary Elections* (Chicago); Robbins's *Selected Articles on the Commission Plan of City Government* (Minneapolis), and Towler's *Socialism in Local Government* (second edition; London and New York). The 1909 *Proceedings of the National Municipal League* (Philadelphia), contains important discussions of practically all the topics treated in this article and others besides. See also MUNICIPAL OWNERSHIP and various articles on municipal engineering and sanitation.

MUNICIPAL LEAGUE, NATIONAL. An organization formed in 1894 for the purpose of multiplying the numbers, harmonizing the methods and combining the forces of all who realize that it is only by united action and organization that citizens can secure the adoption of competent laws and the selection of men of trained ability and proved integrity for municipal business, and to prevent the success of incompetent or corrupt candidates for public office. Through a series of committees it has promoted the thorough investigation and discussion of the conditions and details of civic administration. Among the committees at work in 1909 were the following: Committee on Coördination of University and Collegiate Instruction in Municipal Government; Committee on Municipal Health and Sanitation; Committee on Instruction in Municipal Government in Elementary Schools; Committee on Municipal Accounting; Committee on City Clubs; Committee on Electoral Reforms; Committee on City Finances and Budgets; Committee on Police; Committee on Legislative Reference Libraries. The League also serves as a clearing house between organizations and individuals working at the various phases of the municipal problem. Annual meetings are held in the largest cities of the country. The proceedings of each meeting have been published in a bound volume, and these have had pronounced influence on the thought and deliberations of municipal affairs generally. The annual meeting of 1909 was held in Cincinnati, November 15-18. Among the questions discussed were instruction in civics in elementary and high schools and in colleges; the prosecution of graft; im-

migration and the municipal problem; the police problem; taking municipal contracts out of politics; the essential principles of a building code; the elimination of party designations in municipal elections, the operation of the initiative, referendum and recall; municipal budgets and expenditures; and municipal research and franchise questions. In 1909 there were 1570 annual members, 91 contributors, and 181 affiliated members with an enrolled membership of 181,096. The officers of the League in 1909 were, Hon. Charles J. Bonaparte, Baltimore, President; Dr. A. Lawrence Lowell, Harvard University, George McAneny, New York, Charles Richardson, Philadelphia, Hon. George W. Guthrie, Pittsburg, Walter L. Fisher, Chicago, Hon. Henry L. McCune, Kansas City, and Thomas N. Strong, Portland, Oregon, Vice-Presidents; George Burnham, Jr., Philadelphia, Treasurer; Clinton Rogers Woodruff, Philadelphia, Secretary.

MUNICIPAL OWNERSHIP. The tendencies towards a change from private to public ownership of municipal public utilities which has become notable in recent years, continued during 1909, particularly as regards water-works. The San Francisco vote of November 12, 1908, in favor of municipal water-works was followed by considerable preparatory work to that end during 1909. Owing to complications regarding rights-of-way for conduits and land for a reservoir site in the famous Hetch-Hetchy Valley, which is a part of the Yosemite National Reservation (not to be confused with the Yosemite Valley), and also owing to the opposition of the Spring Valley Water Co., which owns the works on which the city now depends for a water supply, comparatively little progress towards municipal ownership was made. The Hetch-Hetchy complications included a determined fight by John Muir and others against the acquisition of water-supply rights in the Hetch-Hetchy Valley or on any part of the Tuolumne River within the reservation named. Mr. Muir and others urged that the flooding of a portion of the valley named for water storage purposes would ruin one of the most notable stretches of natural scenery which the country possesses. The fight was carried to Congress, in connection with some desired transfers of government land and related matters. The opponents of the scheme were so far successful as to prevent Congressional action in 1909, but the city proceeded with other preliminaries to the development of this supply. Near the close of 1909 the Spring Valley Water Co. made an offer to sell its works to the city, and an election was called for January 14, 1910, to give the voters a chance to decide whether to (1) accept that offer; (2) go on with the complete Tuolumne project, or (3) buy out the company and carry out only a part of the Tuolumne project. The elimination of the Company would end a prolonged conflict over water rates. The latter are fixed annually by the city authorities, but the legality of the rates established for most of the years in the present decade is before the State and United States courts for adjudication. For an extended discussion of both sides of the Hetch-Hetchy controversy see *Engineering News*, January 7 and 21 and February 4 and 11, 1909; and for comments on water-rate litigation in Oakland and San Francisco see the same journal for May 27 and August 12, 1909.

Both Denver, Colo., and Omaha, Neb., took

steps toward municipal ownership of water-works in 1909, each in continuation of earlier efforts. Omaha voted \$6,500,000 of bonds to buy out the Omaha Water Co.; at Denver engineer-appraisers fixed the valuation of the property of the Denver Union Water Co., at \$14,400,000. Kansas City voted about \$1,100,000 to buy the works of the Metropolitan Water Co., and \$400,000 for extensions. See also WATER-WORKS for municipal and private ownership in France, Belgium and Switzerland.

MUSEUM OF FINE ARTS. An institution incorporated in Boston in 1870. Until May 2, 1909, the Museum occupied a building in Copley Square, but on November 15, the new and imposing group of buildings, was occupied. These buildings were completed at a cost of over \$1,500,000. Work was begun on April 11, 1907. Among the notable collections in the new building are the Collections of Egyptian Department, Collections of the Department of Classic Art, Collection of Pictures, the Print Department, the Collections of Western Art, Collections of the Department of Chinese and Japanese Art, Collection of Casts and the Library. The interior arrangements were perfected after a careful study of all the chief museums in Europe and the United States. Collegiate courses in the history and observation of fine arts were carried on and the museum classrooms and lecture hall are open for single lectures or courses of instruction. The income of the museum is \$110,000, and the annual expenditures about \$75,000. The visitors number annually about 275,000. The president of the board of trustees is Gardner M. Lane; the director, Arthur Fairbanks, and the secretary, Benjamin Ives Gilman.

MUSIC. Rivalry between the Metropolitan and Manhattan companies brought, in 1909, the vexed question of excessive salaries to a culmination, even if no immediate solution of the difficulties is in sight. By the close of the year this rivalry had become a matter of international importance. André Messager, the director of the Paris Grand Opéra, ascribes the general demoralization of European artists and the abnormal conditions of matters musical, and especially operatic, on both sides of the Atlantic to the extreme competition of the two powerful New York institutions. The efforts of the trust formed two years ago by Italian and South American managers for the purpose of forestalling the present situation have resulted in utter failure. Not only has the luring away of the best singers in large numbers seriously impaired the artistic efficiency of all the opera houses of Italy, but the excessive salaries that had to be paid to the artists remaining at home have caused heavy financial losses. Not one Italian or South American opera reported a successful season. In France conditions were almost as bad; while Germany was scarcely affected, if at all. The directors of both the New York houses seem to be fully aware of the seriousness of the situation, for in the closing days of the year rumors of a possible opera merger were current. Mr. Hammerstein admitted that financially the year had been very poor. On the other hand, the presence of the world's greatest artists, arrayed against one another in two rival companies animated by the sense of keenest competition, is responsible for the unusually high level of artistic excellence. As regards the public, the mere craze for high-

priced stars seems to have passed its zenith. Strong popular interest has not declined by any means, but this interest now seems to spring from a saner and more intelligent appreciation of the art, if the offerings of musical organizations be a true index of the popular demand. It may safely be asserted that music is no longer a mere fad in the United States, but is beginning to assert its place as an integral factor in the national life. That such is really the case is proved by the assiduous and wide-spread cultivation of absolute music and the ever increasing number of symphony orchestras throughout the country.

THE UNITED STATES

ARTISTS. The tour of Paderewski aroused special interest. While this artist has always exerted a remarkable power of attracting vast audiences, it had become apparent that his ambition to attain distinction as a composer interfered with the amount of practice necessary to maintain himself in the class of the greatest pianists. After a decade and a half of earnest striving, Paderewski has evidently come to realize that it is better to be a prince among interpretative artists than a mediocrity among composers. As a matter of fact, his playing during the last year revealed to their fullest extent his extraordinary powers. Among the newcomers the début of the Spanish boy Pepito Arriola was watched with intense interest. Reports of his stupendous achievements as a pianist had reached the United States, and when he was actually heard, it was evident at once that those reports had not been exaggerated. The boy's mental grasp of the compositions is that of the matured artist. The unanimous opinion regarding his achievements was briefly summed up in the verdict: "a second Mozart." The distinguished Russian composer Rachmaninoff revealed himself as an excellent interpreter of his own works. As soloist with the New York Symphony Orchestra he played, for the first time, his new piano concerto in C minor, a work full of real inspiration. In Yolanda Merö we made the acquaintance of a splendid young pianiste of wonderful temperament. She seemed a little too fond of exhibiting her truly brilliant technic. Germaine Schnitzer of Vienna and Germaine Arnaud of Paris were both recognized as excellent pianists. Of Gabrilowitsch and Lhévinne, Carrefio and Samaroﬀ, nothing need be said beyond the fact that their art added brilliancy to a brilliant musical season. Among violinists Jascha Bron was the only newcomer. He is a young man with a reliable technic, and a true musician. Kreisler, Petschnikoff, Elman, Hartmann and Spalding are well established favorites. The Russian 'cellist, Josef Malkin, impressed his audiences as a most serious artist and consummate master of his instrument. Besides this new artist only Leo Schulz, an established favorite, claimed the attention of lovers of the 'cello. Among the singers an event of the first importance was the celebration by Mme. Sembrich of the twenty-fifth anniversary of her appearance on the operatic stage in New York. This event attained a special significance by the fact that the distinguished artist chose this occasion to bid farewell to the operatic stage. All the artists of the Metropolitan Opera House participated in a grand farewell performance. However, Mme. Sembrich has

not entirely withdrawn from the musical world. She still continues to appear on the concert-stage. The retirement of Mme. Eames, though not made the occasion of a special celebration, was sincerely regretted by the large number of her admirers. For almost twenty years she has been among the foremost operatic singers. Among the new vocalists two at once attracted special attention, the famous Dutch contralto Tillie Koenen and the French dramatic soprano Blanche Arral. The former is one of the most intensely emotional singers, with a magnificent voice, the technical manipulation of which, however, is at times not quite above criticism. But her interpretation amply counterbalances any minor defects. The variety of her programmes attests the versatility of her artistic scope. Mlle. Arral's is a voice of great purity and flexibility, particularly adapted to intense dramatic accents. Her "recitals" consisted entirely of operatic excerpts. Blanche Marchesi was recognized as a dignified and artistic exponent of the vocal art. Ludwig Wüllner's tour was a repetition of his triumphs of the preceding year. Mme. Nordica appeared in numerous concerts and recitals, but her joint recitals with Mme. Carreño were real "events." Without the artistic contributions of David Bispham and Mme. Schumann-Heink the musical season would have been incomplete.

ORCHESTRAL CONCERTS. The Philharmonic Society of New York began its sixty-eighth season, not only under a new conductor, but practically as a new organization. The original policy of self-government has been abandoned. Several wealthy music-lovers offered the society a guarantee fund of \$100,000 for three years, on condition that they should be represented on the board of directors, and should have a voice in determining the methods by which the orchestra could be established on a permanent basis. It was generally recognized that, if the society were to continue at all, a much higher standard would have to be maintained than had been possible on the old basis. The new society is governed by a board of directors, in which both the guarantors and the players are represented. Gustav Mahler was appointed conductor for three years; and, in order to insure the carrying out of some necessary reforms, he was invested with almost autocratic power. The first step Mr. Mahler took was to test the efficiency of each individual player, with the result that some of the older members were retired on a pension. From 125 the orchestra was reduced to 100 players. The regular season now consists of 23 weeks, during which time the orchestra is rehearsed daily. Four series of concerts were given. The first series comprised the customary eight evening and eight afternoon concerts; but only the days have been changed from Friday afternoons and Saturday evenings to Thursday evenings and Friday afternoons. The second series, called "Historical Cycle," presented on six Wednesday evenings, in chronological order, representative works from Bach to the present day. The third series, consisting of five concerts on Friday afternoons, was devoted exclusively to the works of Beethoven. The concerts of the fourth series took place on five Sunday afternoons. The opening concert of this series, which afforded miscellaneous programmes, contained only works of Beethoven and Wagner. Besides the regular New York concerts the orchestra also gives

regular series in other cities. The players no longer receive a share of the net proceeds, but are engaged on a fixed salary. The eminent violin virtuoso, Theodore Spiering, is the concert master of the new organization. Mr. Mahler conducted with his usual brilliancy.

The New York Symphony Society, under Walter Damrosch, gave besides its regular concerts a cycle of six concerts devoted to the works of Beethoven, and one of five concerts presenting the principal works of Tchaikowski. The last concert of the Beethoven cycle was unique. Its programme contained nothing beyond the Ninth Symphony. This work was played twice in its entirety, with an intermission of fifteen minutes between the two performances. In order to obtain a greater volume of tone from the vocal quartet in the last movement Mr. Damrosch employed a quadruple quartet consisting of sixteen picked soloists. The effect was splendid. The two renditions were not identical. The first time Mr. Damrosch made the usual pause between the Adagio and final Presto; the second time this pause was omitted, and the opening chord of the Presto crashed with telling effect upon the Olympic repose of the Adagio. To the Symphony Society also belongs the credit of having observed the centenary of Mendelssohn's birth more worthily than any other musical organization. See **FESTIVALS.**

All the other famous orchestras had a successful year. The Boston Symphony Orchestra (Max Fiedler) greatly increased the number of its outside concerts, so that now it appears in more than one hundred concerts during the year. Likewise The Philadelphia Symphony Orchestra (Carl Pohlig), the Theodore Thomas Orchestra of Chicago (Frederick Stock), and the Pittsburg Symphony Orchestra (Emil Paur) increased the number of concerts on tour. For the Minneapolis Symphony Orchestra (Emil Oberhoffer) a guarantee fund of \$250,000 for five years was raised. The object is to increase the orchestra numerically, and also to extend the scope of its artistic activity. After the dissolution of the Cincinnati Symphony Orchestra (Frank van der Stucken) two years ago, Cincinnati has been dependent upon the visits of outside orchestras. During the past year the efforts of some public spirited citizens resulted in the establishment of a new orchestra bearing the old name. The new organization number seventy players under the direction of Leopold Stokovsky. The first concert in December was an emphatic success. The steady increase in interest and growth of intelligent appreciation of serious music is best attested by numerous reports from minor cities of the establishment of symphony orchestras.

The Dresden Orchestra of seventy performers, under the direction of Willy Olsen, made a spring tour of the United States without arousing special attention. Presenting no less than five soloists (Nordica, Bispham, Spalding, Langendorff, Schnitzer) at the opening concert in New York was a sad mistake. Attention was diverted from the orchestra to the stars. The reason for this tour was not apparent.

OPERA. At the Metropolitan Opera House 160 performances were given from a repertoire of 41 operas by 21 composers. According to nationality these were divided as follows: Italian, nineteen works by nine composers; German, sixteen works by eight composers (but Mo-



Courtesy of the "Review of Reviews"

FERRUCCIO BUSONI
Italian Pianist



Courtesy of the "Review of Reviews"

SERGEI RACHMANINOFF
Russian Composer and Pianist



LEO SLEZAK
The Czech Tenor at the Metropolitan Opera House



Copyright, 1909, by E. F. Foley Co., New York

MADAME LUISA TETRAZZINI
Of the Manhattan Opera House

FOUR ARTISTS PROMINENT IN 1909
MUSIC

zart's *Nozze di Figaro*, Gluck's, *Orfeo* et *Eurydice*, and Flotow's *Marta* in Italian); French, five works by four composers; Bohemian one work, Smetana's *Bartered Bride* (in German); Wagner, represented by nine works, led with thirty-five performances. Next in order came Verdi, of whom six works had twenty-nine performances. Puccini, who for two years had predominated, was reduced to the third place; four of his works aggregated twenty-one performances. Smetana's *Bartered Bride* was given most frequently, nine times. Next came Mozart's *Nozze di Figaro* and Puccini's *Madama Butterfly*, each with eight performances. Wagner's *Tannhäuser*, Verdi's *Aida*, and Massenet's *Manon* were each given seven times. A superficial comparison of these statistics with those of the two preceding years might seem to indicate the reestablishment of normal conditions. Wagner has once more come into his own. As the greatest dramatic composer in the history of music his works naturally ought to occupy the first place in the repertoire. Unfortunately only an accident, not natural causes, restored Wagner's works to their proper position in the repertoire of the Metropolitan Company. Before the closing of the spring season an affection of the throat compelled Caruso to withdraw. This was the primary cause for reducing the Puccini performances. But the tenor's return in the fall did not mark a return to the former policy; and it is this fact upon which the hope of returning normal conditions is based. Of the novelties announced only two were given. Catalani's *La Wally* (January 6) was a distinct disappointment; but Smetana's *Bartered Bride* (February 19), a work written more than forty years ago, was received with unequivocal approval. On the other hand the year was marked by some important revivals of older works. That Massenet's *Manon* still is heard with pleasure is attested by the fact that it was given seven times. The return of Verdi's immortal master-works *Otello* and *Falstaff* was hailed with enthusiasm. The performance of Gluck's *Orfeo* was a revelation. This was due chiefly to the genius of Toscanini.

The past year witnessed an increase, not only in the list of the principal singers, but especially in the numbers of the orchestra and chorus, the former numbering 150, the latter 200 members. The greatest improvement, however, was noticeable in the stage-management. All factors combined to make the year a most notable one from an artistic standpoint. The evident desire for artistic results led to the establishment of a branch, so to speak, of the Metropolitan Company at the New Theatre, which opened its doors in the fall. It had been found that certain works were ill suited to the dimensions of the vast opera house, and would greatly gain if presented in the intimacy of a smaller theatre. To present such works adequately, performances were given at the New Theatre on alternate Tuesday and Friday evenings and alternate Wednesday and Thursday afternoons. The series was opened on November 16 with Massenet's *Werther*; the other works given were Smetana's *Bartered Bride*, Rossini's *Il Barbiere di Siviglia*, Lortzing's *Zar und Zimmermann*, Paër's *Il Maestro di Cappella*, Mascagni's *Cavalleria Rusticana*, Lecoq's *La Fille de Mme. Angot*, and Donizetti's *Don Pasquale*. Paër's work is a century old, and a typical Italian opera buffa. The chief reason for its

production was to show the bass Signor Pini-Corsi in one of his best rôles. But the work in itself was charming, and was received as a welcome novelty. Besides the regular performances and usual Sunday night concerts all the artists of the company volunteered their services for two special occasions: one, a concert for the benefit of the sufferers in the terrible Sicilian earthquake; the other, an operatic performance for the benefit of the pension and endowment fund of the employees of the Metropolitan Opera Company. Among the artists who contributed to the signal success of the season were the following: *Sopranos*: Mmes. Nordica, Gadske, Destinn, Fremstad, Farrar, Morena, Fornia, Nielsen, Novia, Alda; *Contraltos*: Mme. Flahant, Homer, Meitschik, Mattfeld, Niessen-Stone; *Tenors*: Caruso, Slezak, Bonci, Jörn, Burrian, Anthes, Martin; *Baritones* and *Basses*: Amato, Goritz, Scotti, Mühlmann, Soomer, Whitehill, Witherspoon, Blass, Didur, Pini-Corsi, Hinckley, Segurola; *Conductors*: Mahler, Hertz, Toscanini, Tango, Podesti, Bendix.

At the Manhattan Opera House 110 performances were given from a repertoire of 32 operas by 21 composers. According to nationality these were distributed as follows: Italian, 14 works by 7 composers; French, 15 works by 11 composers; German, 2 works by 2 composers (both in French); Belgian, 1 work. Massenet led with 18 performances of 5 works; Verdi followed with 17 performances of 5 works. Four novelties were produced: Richard Strauss's *Salome* (in French) (January 28); Block's *La Princesse d'Auberge* (March 10); Massenet's *Hérodiade* (November 8) and the same composer's *Sappho*. Of these *Salome* proved a sensational success, but for reasons other than purely musical. Of all the works performed it achieved the greatest number of performances: nine. In Philadelphia the work aroused so much opposition, also for reasons other than musical, that Mr. Hammerstein thought it wise to withdraw it from the repertoire of his Philadelphia house. The work of the Belgian composer divided musical opinion into two camps. This is rather strange, as the opera contains nothing of a startling nature. It has weaknesses, but the positive virtues overbalance. The composer makes extensive use of leading motives, whose merit is their pregnancy and melodiousness and whose weakness their lack of musical development; they always recur without the slightest variation. On the whole, the opera is quite effective. Either of Massenet's works would have made a deeper impression, if the public had not had a surfeit of this composer; both are characteristic of Massenet's suave and graceful style. *Hérodiade*, while extremely beautiful as music, is too mellifluous; the text calls for poignant, dramatic accents. The music of *Sappho* is more characteristic of the dramatic situations, but is far less melodious. With the performance of *Tannhäuser*, which was given in French and in the Paris version, Mr. Hammerstein ventured for the first time into Wagner opera. The attempt was not very successful, because the new conductor, Enriquez de la Fuente, seems to lack the temperamental qualities required. In his leading of French scores he showed himself to much better advantage. He had his forces well in hand, and proved himself a musician of refined sensibilities. But it also became quite evident that as a conductor he is not in the

same class with his illustrious predecessor Campanini, whose absence was sorely felt. The exact cause of Campanini's resignation has never become known. This much is certain: the loss of any other artist would have meant less as far as general efficiency is concerned. Now that the general public has come to understand and appreciate the conductor's art, the manager can no longer insure success by presenting only an array of stars, no matter how excellent these be. Among the principal artists were the following: *Sopranos*: Mmes. Garden, Tetrazzini, Cavalieri, Labia, Trentini, Carmen-Melis; *Contraltos*: Mmes. Gerville-Réache, Doria, Bayard; *Tenors*: Dalmores, Zenatello, McCormack, Constantino; *Baritones and Basses*: Renaud, Gilbert, Dufranne, Sammarco. At the Philadelphia house conditions were such at the beginning of the year that Mr. Hammerstein threatened to close the house permanently, unless a guarantee fund was raised. This guarantee was assured.

During the months of September and October Mr. Hammerstein gave a season of summer opera at his Manhattan Opera House. An entirely new company of singers was engaged, while Mr. Sturani, the regular conductor of the Philadelphia opera, directed the regular Manhattan orchestra and chorus. The season opened with a revival of Meyerbeer's *Le Prophète*. Another revival was Halévy's *La Juive*. While the performances were in every respect adequate, the public showed unmistakably that it had outgrown that style of opera. Artistically this attempt at summer opera was successful, financially it resulted in a deficit of \$50,000. Another unsuccessful venture of Mr. Hammerstein was his experiment with French Opéra Comique, which he gave on Tuesday and Saturday nights during his regular season with a complete company distinct from that of his Grand Opera. After eight performances the project was abandoned.

On November 8, the new Boston Opera House was opened with a performance of Ponchielli's *La Gioconda*. Up to the end of the year 45 performances of Italian and French works were given. Verdi had 16 performances of 4 works. Among the artists known also to frequenters of opera in New York are Nordica, Nielsen, Boninsegna and Constantini. By an arrangement with the Metropolitan Opera Company there is to be an exchange of artists between the two managements. A special feature of the Boston Opera Company, and one that promises to exert a most important influence upon the musical life and conditions of America, is the simultaneous establishment of the Boston Opera School, the chief purpose of which is the training of native talent for grand opera. American singers are to be assured a début in their own country. Saturday nights are known as "debutant nights." The principal parts are filled only by young aspirants. This policy was carried into effect immediately, and the operas given on these debutant nights were *Aida*, *Lakmé*, *La Bohème*, *Cavalleria Rusticana*, *Pagliacci*, *Rigoletto* and *Madama Butterfly*.

After an intermission of five years New Orleans had once more its own opera company under the conductorship of M. Tartanac. Naturally the works of French composers preponderated. The Metropolitan Company of New York gave a two-weeks' season in Chicago with such satisfactory artistic and financial results,

that arrangements were completed for a more extended season during 1910. Besides the two great companies New York heard also several minor companies. Of these the Italian Grand Opera Company, which opened a season early in September, gave some really excellent performances at the old Academy of Music. But when, after five weeks, the deficit had amounted to about \$10,000, the organization was disbanded.

FESTIVALS. Throughout the country the centenary of Mendelssohn's birth was fittingly observed. The most elaborate celebration was that arranged by Mr. Damrosch with the Symphony and Oratorio Societies, assisted by Gahrilowitsch and Mme. Bloomfield-Zeisler. A special feature of this four days' festival was a production of Shakespeare's *Midsummer Night's Dream* by the Ben Greet players with Mendelssohn's incidental music performed by the Symphony Orchestra. The most important of the year's festivals was the triennial prize contest for the "Kaiser-Preis" held by the Northeastern Sängerbund in New York. The prize, founded by Emperor William in 1900, consisted of a beautiful silver statue of a minnesinger of the thirteenth century. No less than 13,000 singers took part. The prize song "The Warning of the Rhine" was composed by Mathieu Neumann. The judges were Prof. Meyer-Olbersleben of Würzburg, Gustav Wohlgenuth of Leipzig, Arthur Mees of New York, and Cornelius Rübnér, professor of music at Columbia University. Julius Lorenz and Carl Hein were the festival conductors. The prize was divided between the *Kreutzer Quartet Club* (F. Albeke, conductor) of New York, and the *Junger Männerchor* (L. Koemenich, conductor) of Philadelphia. Each society is to keep the statue for eighteen months. At the fifty-second annual Worcester Music Festival, held in September under the leadership of Arthur Mees and Gustav Strube, Liszt's *Missa Solemnis* was heard in its entirety for the first time in America. The thirteenth annual Maine Music Festivals were held in October under the direction of William R. Chapman, with programmes far too miscellaneous to be called festival programmes. A most important event was the Bach festival given in May in the open-air theatre at Berkeley, Cal., by Frederick Wolle, who in former years attracted so much attention with his Bach festivals at Bethlehem, Pa. The work performed was the great Mass in B minor. Atlanta, Ga., had a May Festival with the assistance of the Dresden Philharmonic Orchestra. Philadelphia showed its pride in its local musicians by giving a festival at which works by twelve local composers were performed.

NOVELTIES. Among many new works Paderewski's Symphony in B minor, played by the Boston Symphony Orchestra under Max Fiedler, attracted perhaps the most attention. It is programme music, and owes its inspiration to the fortieth anniversary of the Polish revolution of 1863-4. Although it contains some fine music, the work is not convincing as a whole. The enormous orchestral apparatus is handled with consummate skill, and a great variety of tonal color is obtained. The Pittsburg Symphony Orchestra gave a fine interpretation of a Symphony in A major by its conductor, Emil Paur. The work bears the title "In der Natur." It proved to be a really fine composition, picturesque, sane and inspired. Rachmaninoff's *Second*

Symphony was heard from the Russian Symphony Orchestra, under Modest Altschuler. The work is of inordinate length, requiring more than an hour for its performance. It is too prolix, and the several portions often lack connection; but in spite of these defects it is full of superb ideas. The orchestration is skillful and very effective. With the Philharmonic Society Gustav Mahler conducted his *First Symphony*. In all the movements extensive use is made of folk melodies, which afford the composer opportunity for a great variety of moods. The work exhibits the same excellencies and the same faults that characterize his later and more ambitious symphonies. The inspiration is not evenly maintained.

EUROPEAN COUNTRIES

GERMANY. The event of the year was the première of Richard Strauss's *Elektra*, which occurred on January 25, at the Royal Opera of Dresden under the direction of Ernst von Schuch. As far as outward appearances went, the performance was an enormous success. But the consensus of opinion among prominent musicians did not endorse the popular demonstration. In its essential features the style of *Elektra* is that of *Salome*. Superb orchestra coloring, at times enchanting, at others bewildering, constitutes the chief merit of the extremely complicated and difficult score. The musical themes and their treatment are brutal. Mere noise and cacophony run riot. In the seething orchestral whirlpool the human voices were relentlessly swallowed. The performances of this work under Leo Blech at the Royal Opera of Berlin were received rather coldly. The composer did not conduct *Elektra* himself until October; and then he conducted it in so sensational a manner, that the attention of musicians became centred solely upon the incredible virtuosity of the orchestra. Strauss took all the tempi much faster than either Schuch or Blech had done. At the Berlin Royal Opera two of the foremost singers, the baritone, Rudolf Berger, and the contralto, Edyth Walker, surprised their admirers by appearing in tenor and soprano rôles respectively. The transformation seems to have been an absolute success. Berger appeared as Lohengrin, Mme. Walker as Isolde and Brinnhilde. For the first time in its history the German capital had a season of summer opera worthy of the city's reputation. Herman Gura brought together a company of the best singers for a ten weeks' season, and presented the works of Wagner, Mozart and some modern Italian composers. Strauss's *Salome* was also included. Among the regular singers were Kraus, d'Andrade, Van Rooy, and Mmes. Kaschowska, Langendorff, and Walker. Lilli Lehmann and Marcella Sembrich appeared as guests. Brecher and Stransky were the regular conductors, while Mottl and Lohse conducted some of the Wagner performances by invitation. The only novelty brought forward, Zumpé's *Savitri*, proved a horrible fiasco. In the fall Dr. Alfieri established a new "Volk-soper" for the purpose of giving opera at popular prices. Many previous attempts in this line had ended in failure, because managers relied upon two or three singers with a reputation, but whose voices were no longer in their prime. Dr. Alfieri followed a new plan. He engaged a number of young and unknown singers together with an excellent orchestra and chorus under

efficient conductors, with the result that the progress of the season witnessed a steady increase in the attendance. Throughout Germany few operatic novelties were given. Outside of *Elektra* D'Albert's *Izyl* was heard for the first time in Hamburg. It proved a great and deserved success, for it is regarded as the composer's best work, one in which the inspiration flows uninterrupted. At Dresden *Dame Kobold* was heard, which turned out to be nothing else than Mozart's *Cosè fan tutte*. The original text of Mozart's opera has through its coarseness become so offensive to modern taste that it has proved a serious drawback to musical performances. Scheidemantel took Calderon's *Dama Duende*, of which he made a German vision adapted to Mozart's music. The experiment was successful, and the adaptation was immediately secured by a number of German opera houses. At the Bayreuth festival (July 22-August 20) *Lohengrin*, *Parsifal* and the *Nibelungen* dramas were given with splendid success. The conductors were Richter, Muck, Balling, and S. Wagner. The festival performances of the Wagner-Mozart cycle at the Prinzregententheater in Munich were of very uneven merit. The opinion was expressed that the representations of the regular season were superior. Cologne was the scene of a very successful operatic festival (June 10-20). The works performed were Götts's *Taming of the Shrew* (Mottl), *Nozze di Figaro* (Mottl), *Meistersinger* (Nikisch), *Fidelio* (Steinbach), *Elektra* (Lohse).

Among the many festival concerts the great Brahms Festival held in September in Munich was the most important event, if for no other reason than the fact that it was the first Brahms festival ever held anywhere. The great Hamburg master has always been regarded as the composer of a small select circle; no one ever thought of using his name to attract a large gathering. But scarcely had the project been announced, when it became evident that the name of Brahms possessed some magic, for early in July the last seat had been sold. To meet the great demand for admission the final rehearsals were made public rehearsals. The works performed were the immortal German *Requiem*, *Schicksalslied*, *Triumphlied*, all four symphonies, the Violin concerto and the Haydn Variations. Two concerts were devoted to the master's chamber music, and Dr. Willner gave a recital of those songs which are seldom heard. The orchestra consisted of the Meininger Hofkapelle and the Munich Tonkünstler Orchestra; the vocal works were rendered by the famous Gürzenich Society of Cologne. Fritz Steinbach of Cologne was the festival conductor. In all respects this first Brahms festival was a signal success. The annual festival of the Allgemeiner Deutscher Musikverein, which was held in Stuttgart in June, proved a complete failure. Not one of the works—all novelties—was worth the trouble of performing. The Dresdener Lehrer-gesangverein (conductor Rümhild) celebrated the twenty-fifth anniversary of its foundation by a splendid performance of Wagner's *Liebesmahl der Apostel* in the Frauenkirche, the very place in which the first performance of the work took place in 1843. Two chamber-music festivals, one at Darmstadt, the other at Bonn, were unqualified successes. The centenaries of Haydn's death and Mendelssohn's birth, and the semi-centenary of Spohr's death were generally ob-

served in the programmes of the various concert institutions.

AUSTRIA. Owing to the celebration of the diamond jubilee of the accession to the throne of Franz Josef and the centenary of Haydn's death the musical offerings of the entire year assumed something of a festival character. The Haydn celebration took place at the end of May. All of the master's famous works, and many that nowadays are seldom or never performed, were heard. The climax was a magnificent performance of *The Creation* under the direction of Ferdinand Loewe. Vienna also had Strauss's *Elektra* with Lucile Marcell, an American artist selected by the composer himself, in the title rôle. The reception of the work was not over-enthusiastic. Two other novelties brought out by Weingartner at the Royal Opera turned out failures. The Vienna Philharmonic Society abandoned its policy of inviting guest-conductors, and elected Weingartner as its permanent director. Bruckner still maintains his strong hold on the Viennese public, as is shown by performances of six of his eight symphonies. The famous conservatory of the "Gesellschaft der Musikfreunde" passed under state control, and is henceforth known as "Kaiserlich-Königliche Akademie der Tonkunst."

ENGLAND. An innovation in the operatic life of London was a four weeks' season of grand opera in English on a most elaborate scale at Covent Garden. The works performed were Wagner's Ring-dramas and *Meistersinger* and Puccini's *Madame Butterfly*. The artists were all English and American. The Brünnhilde of Mrs. Saltzmann-Stevens, an American, was regarded as one of the finest ever heard in London. Dr. Richter conducted. The success of the new venture was so pronounced that the management, yielding to the popular demand, gave another four weeks' season in October with the same artists. *Tannhäuser* and *Tristan und Isolde* were added to the repertoire. During the regular season (April-July) only French and Italian operas were given; but two extra performances of *The Valkyr*, with Mrs. Saltzmann-Stevens as Brünnhilde, were added by request. The season was opened most brilliantly with a superb performance of Saint-Saëns's *Samson et Délila*, with the composer present in the audience. It was, moreover, the first performance of the work as an opera in England. Of the novelties Debussy's *Pelléas et Mélisande* made little impression, and was withdrawn after three performances. Charpentier's *Louise* aroused considerable diversity of opinion. Camille Erlangers's *Tess* proved a pleasing work, and met with success. The Moody-Manners Company gave their usual season of opera in English at the Lyric Theatre in August. Alick Maclean conducted the première of his one-act opera, *Maitre Scier*, which was well received. Wagner's *Rienzi* had its first performance in English; the work had not been heard in England since 1882. At the Coronet Theatre the Castellano Company gave twenty-four performances of Italian operas, in the course of which Leoncavallo's *Zaza* was heard for the first time in England, and proved a dismal failure. Considerable attention was attracted by "The Children's Opera Company of Rome," which is composed entirely of children from southern Italy. Vittorio Gamba, a fourteen-year-old boy, was the principal tenor, and Dora Theor, sixteen years of age, the prima donna. Very remarkable per-

formances of *Lucia*, *Sonnambula*, *Il Barbiere di Siviglia*, and *The Geisha* were given at Terry's Theatre.

Thomas Beecham organized a new symphony orchestra of 85 players, which immediately took its place among the great English orchestras. The programmes were remarkable for their wide range, although not a single work by Beethoven or Brahms was performed. English composers were well represented. Mr. Wood's series of 60 promenade concerts was the most successful he has ever given. Not less than 42 novelties, many by English composers, were produced. The London Philharmonic Society ended the year in very bad condition. The venerable organization, which in former years relieved Beethoven from financial embarrassment in his last days, and later was one of the earlier champions of Wagner, seems to be hopelessly moribund. Even the great conductors by whom it was directed during the past year failed to attract a sufficient number of supporters. The general impression prevails that the society will only be kept together for another year, which will be the one hundredth of its existence, and that then it will be dissolved. The Société des Concerts Français made active propaganda for the works of the new French school. One concert was devoted entirely to works by Debussy. But English audiences maintain their attitude of indifference towards the new art. Even the personal appearance of Debussy with the Queen's Hall Orchestra could not arouse enthusiasm. Elgar's *Symphony*, which was accorded such an enthusiastic reception on its first hearing in the fall of 1908, has already lost its hold on English audiences in spite of performances led by such men as Wood and Nikisch. A matter of interest was the discovery in the British Museum of a concerto for string quintet, two oboes and piano by an unknown English composer, John Hendon (1690-1755). The work was immediately performed, but proved to be of little value. The Mendelssohn centenary was observed in conjunction with a Handel festival at the Crystal Palace, and the programme was typical of the state of music in England of half a century ago. At the Three Choirs' Festival in Hereford Schubert's *Lazarus* had its first performance in England. The *Messiah*, *Creation*, *Elijah*, *Apostles*, and Elgar's *Symphony*, were given, besides excerpts from *Parsifal* and new works by Davies, Bantock, and Delius. On the programmes of the Birmingham Festival were *Elijah*, *Judas Maccabæus*, *The Dream of Gerontius*, Berlioz's *Faust*, Cherubini's *Mass in C*, and Brahms's *Schicksalslied*. The Newcastle Festival had the assistance of the distinguished Busoni, who conducted his own concerto for piano. Brahms's *Trumphiied* was also heard. The novelty was Rimski-Korsakoff's *Ballad of the Doon of Oleg*.

FRANCE. Almost all the important operatic institutions were seriously affected by the prolonged absence of some of their best artists in America. The Paris Grand Opéra reports a deficit of 300,000 francs, due partly to the New York opera war, partly to the trouble incident to a double directorship. The latter difficulty was ended by placing M. Messager in absolute control. The principal artistic event of the year was the first production of Wagner's *Rheingold* in December under the baton of Messager. It was an overwhelming success. At last all of the Wagner dramas, except *Parsifal*,

have found their way into the repertoire of the Opéra. Another noteworthy event, that proved a great artistic and financial success, was a gorgeously mounted performance of Spontini's *La Vestale*, presented by the full personnel, including the orchestra and chorus of La Scala of Milan. Massenet's latest opera, *Bacchus*, was a distinct disappointment; but *Monna Vanna*, by Février, was received with favor. At the Théâtre Châtelet a season of Russian opera with Russian artists was given during May and June. The works performed were Rimski-Korsakoff's *Ivan*, Borodin's *Prince Igor*, Glinka's *Ruslan and Ludmilla* and several ballets. At Monte Carlo Russian works played an important part in the repertoire. Glinka's *Life for the Czar*, Rubinstein's *Demon*, and Dargomishki's *Rusalka* were frequently mounted. At Lyons the great event was the local première of Wagner's *Flying Dutchman*. At the Théâtre Lyrique de la Gaité a season of opera at popular prices was well patronized. A new work, *Quo Vadis* by Nougès, aroused great enthusiasm. The same composer scored another marked success with his *Chiquito*, produced at the Opéra Comique. At the same institution de Séverac's *Le Cœur du Moulin*, a typical work of the newest French school, achieved more than an ordinary success.

For the benefit of the Beethoven Monument Fund a festival concert, consisting exclusively of works by Beethoven, was given at the Opéra. It not only added materially to the fund, but aroused a regular Beethoven fever. The Colonne and Lamoureux orchestras played all nine symphonies in chronological order; the Touche and Rouge orchestras performed all the other orchestral works, also in chronological order; the Quatnor Capet rendered all the string quartets; the Quatnor Parent the master's entire output of chamber-music; Pugno and Ysaye all the sonatas for violin and piano; and last, but by no means least, Risler played all the sonatas for piano.

ITALY. All operatic managers report heavy financial losses, which they ascribed to the opera war in New York, and the failure of almost every novelty put forward. Some of these new works, it is claimed, would have been successful if the artists now in America had been available at home. The absence of Gatti-Casazza and Toscanini from La Scala in Milan resulted in the withdrawal of all the Wagner works, just now the most profitable works in all Italian opera houses. Strauss's *Elektra* was given at La Scala in March under the direction of the composer, but met with an icy reception. Both Strauss and Debussy are much discussed, but their works throughout the country encounter violent opposition.

NAGEL, CHARLES. An American lawyer and Cabinet officer. He was born in Colorado county, Texas, in 1849. His early education was obtained in the public schools, and he graduated from the St. Louis Law School in 1872. In the year following he studied at the University of Berlin, and in the same year was admitted to the bar. He began practice in St. Louis, where he became one of the foremost members of the bar. In 1881-3 he was a member of the State Legislature and from 1893 to 1897 was president of the St. Louis City Council. From 1886 he was a member of the faculty of the St. Louis Law School. Early in 1909 he accepted the invitation of President Taft to become Secretary of Commerce and Labor in his Cabinet.

NATAL. A British colony in South Africa. Capital, Pietermaritzburg.

AREA, POPULATION, ETC. Estimated area, 35,371 square miles (inclusive of Zululand, 10,461 square miles, and the northern districts, 6931); coastline, about 360 miles. Population, according to the census of April 17, 1904, 1,108,754 (including 3774 British troops and their families). Estimated population, December 31, 1908 (exclusive of military), 1,206,386 (91,443 whites, 7386 mixed, 116,679 Asiatics, 990,878 natives). Estimated population of Pietermaritzburg, December 31, 1908, 31,230; of Durban, or Port Natal, 60,244. There are 41 primary schools, 2 government high schools, 2 art schools, 5 Indian schools, and 2 government schools for colored children; beside 472 private government-aided schools for the several classes. European children in regular attendance (1907), 12,504; others, 14,708.

AGRICULTURE. The highly fertile coast region produces corn, sugar, coffee, arrowroot, ginger, tobacco, bananas, and pepper. The midland district is adapted for cereals, and the upland region for sheep-farming and cattle-raising. Tea is cultivated, and wattle bark is stripped (11,846 tons in 1907) for export. The area under corn increased 15 per cent. in 1907-8. In 1907, 347,900 acres were under cultivation by Europeans (corn, 117,750; sugar, 13,549; Kaffir corn, 6768); by natives, 455,000; by Indians, 30,671. The live-stock owned by Europeans numbered (1907) 227,748 cattle, 30,344 horses, 661,466 sheep, 131,811 goats, 24,922 pigs. The wool clip (1907) was 1,979,999 lbs., against 1,884,615 lbs. in 1906.

MINING. The coalfields are extensive, and are connected by rail with the seaport of Durban. The 1908 output was 1,669,774 tons, against 1,530,043 in 1907. Enormous quantities of iron ore exist near Pietermaritzburg, and mining operations have been begun on a paying basis. Asbestos, copper, fireclay, gold, graphite, gypsum, lead and silver, limestone and marble, manganese, molybdenum, nickel, nitrate, tin, and phosphate are found in varying quantities.

COMMERCE. The value of the commerce for three years is given below:

	1906	1907	1908
Imports	£9,705,256	£8,704,222	£7,903,412
From Gt. Brit. 4,293,536		3,709,670	3,640,918
Exports	10,405,707	10,049,132	9,622,474
To Gt. Brit.	1,487,508	1,779,089	1,663,794

Board of Trade returns give the principal domestic imports from Great Britain in 1908 as follows: Metals, £441,681; apparel, £476,277; machinery, £377,549; cottons, £386,821. Exports to Great Britain: Wool, sheep, £638,546; dye stuffs, £157,325; hides, etc., £153,771; corn, etc., £70,518.

COMMUNICATIONS. Total length of railways December 31, 1907, 976 miles, all constructed or worked by the government. Total cost of construction to end of 1908, £13,989,202; receipts for 1908, £1,832,862; expenditure, £1,240,319. There were (1907) 1964 miles of telegraph lines (wires, 6779 miles), and 181 miles of telephone lines (wires 2315); telegraph offices, 213; post-offices, 380. The registered shipping (1907) showed vessels of 3334 tons. Shipping entered (1907), 1008 vessels of 2,540,596 tons (British, 792 of 2,139,756 tons); cleared, 1007 of 2,513,463 tons (British, 790 of 2,110,310).

FINANCE. The revenue, expenditure, and debt for three fiscal years are given as follows:

	1906	1907	1908
Revenue	£3,665,089	£3,471,932	£3,510,350
Expenditure ..	3,673,972	3,681,914	3,689,752
Debt	18,484,143	20,760,992	21,135,534

The principal sources of revenue (1907) were as follows: Railway, £1,881,551; customs, £539,900; stamps and licenses (including poll and hut tax), £414,937; posts and telegraphs, £173,925; port, harbor, and wharf dues, £108,626; excise, £60,470; land sales, £56,203. Items of expenditure: Railways, £1,385,620; police and gaols, £294,151; public works, £182,186; posts and telegraphs, £157,080; education, £102,033; militia, £60,234.

The Natal police and an active militia formed the defense of the colony and in 1909 were as follows: Natal police (mounted) 857 of all ranks exclusive of native and Indian constables; militia, 2432, of which 1356 were mounted and 255 were in the artillery. The colony also had 122 rifle associations with a total strength of 5005, 235 senior cadets, and 3277 school cadets.

GOVERNMENT, ETC. The colony is administered by a governor (1909, Lieut.-Col. Sir Matthew Nathan, governor and commander-in-chief) assisted by a council and an assembly, both legislative; the latter elected by popular vote. By the South African act Natal is to be made a member of the Union of South Africa. See SOUTH AFRICA, BRITISH.

HISTORY. On March 3, the long trial of Dinizulu came to an end. The court sentenced him to five years imprisonment dating from his arrest fifteen months before, on the charge of harboring rebels. The other charges against him were dismissed. A serious railway strike (see STRIKES AND LOCKOUTS) occurred in April. The strikers found little sympathy in the public, their course being regarded as aggressive and their demands as unjustified. They refused the government's offer to investigate and threatened to oppose South African Union if their demands were not complied with. The chief ostensible cause of the strike was the objection to piece-work. The strike ended in the following month. The leaders were not reinstated. On the opening of Parliament on June 16 the Governor congratulated the country on the good prospects of Union, a large majority being in it favor. (See SOUTH AFRICA, BRITISH.) A new Council for Native Affairs was appointed in the summer, consisting of four native commissioners, three members of the Legislative Assembly, and the Permanent Secretary for Native Affairs. It was designed in the interest of the natives to whom it supplied the means of making their wishes known to the government. On November 3, the Legislative Assembly rejected a land expropriation bill which empowered the government to take possession of lands for purposes of closer settlement. In November the report of the Commission on Indian immigration was published. It recommended the complete exclusion of free but not of indentured labor. The arguments currently urged against Indian labor, namely, that it was virtually servile in character and tended to demoralize the people and that it replaced both native and white labor, were declared to be ill-founded. A large body of evidence was offered to the Com-

mission as to the untrustworthiness of native labor. The existence of certain industries depended on indentured Indian labor.

NATIONAL ACADEMY OF DESIGN. A society of artists, originated in 1825 as the New York Drawing Association. It took its present name in 1828. The originators chose from their number 15 artists, who chose 15 others, these 30 constituting the new society. The aim of the Academy is to further the arts of design and it has maintained schools since its foundation with this object in view. On its rolls are found the names of nearly all the most eminent artists of America. The schools are free to its accepted students, the one limitation being that none but students who are going to follow art as a profession and who are under thirty years of age, are eligible. The students admitted, after passing an examination sufficient to demonstrate a reasonable fitness for the vocation, are afforded the advantages of study under the instructors of the Academy. The atelier system, by which each student from his entrance and during his progress through the school remains under the direction of one and the same instructor, except in special classes, is in force in the schools of the Academy. The schools are in session from the beginning of October to about the middle of May of each year. In 1906 the Society of American Artists was united with the Academy, all the members of the American Artists becoming members of the National Academy of Design. There are various prizes and medals awarded at the Annual Winter Exhibitions of the Academy of oils, pastels and sculpture. The Carnegie prize of \$500 awarded for the most meritorious oil painting in the exhibition by an American artist, portraits only excepted, was awarded in 1909 to Gardner Simons for his painting entitled "An Opalescent River, Deerfield Valley." The Thomas R. Proctor prize was awarded to Montague Flagg. The Isidor Memorial prize for the best figure composition was awarded to Frederick Ballard Williams, and the Helen Foster Barnett prize for the best piece of sculpture shown in the Winter Exhibition, the work of an artist under thirty years of age, was awarded to Chester Beach. John W. Alexander was chosen president of the Academy in 1909 to succeed Frederick Dielman. The Academy is made up of Academicians and Associates. Of the former there were in 1909 about 150, and of the latter, about 115. The officers in 1909 were President, John W. Alexander; Vice-President, Herbert Adams; Corresponding Secretary, H. W. Watrous; Recording Secretary, Kenyon Cox; Treasurer, Francis C. Jones. These, with Will H. Low, J. Alden Weir, Frederick W. Kost, Edwin H. Blashfield, Frederick Dielman and Cass Gilbert, made up the Council.

NATIONAL ACADEMY OF SCIENCE. See SCIENCES, NATIONAL ACADEMY OF.

NATIONAL BANKS. On September 1, 1909, national banks numbered 6977, as compared with 6865 on November 27, 1908. Their aggregate resources were \$9,573,954,000. The loans and discounts amounted to \$5,128,882,000, of which 18 per cent. were credited to New York City banks, 7.5 per cent. to those of Chicago and St. Louis combined, and 26.7 per cent. to those of other reserve cities. Over 41.5 per cent. of the loans and discounts of New York City banks were classed as "on demand, se-

cured by stocks, bonds, and other personal securities," as against 13.6 per cent. for all other national banks. This difference is largely due to the stock exchanges. On the other hand, only 15 per cent. of the loans and discounts of the New York City banks were time loans secured by two-name paper, as against over 37 per cent. for all other banks.

National banks had on deposit, October 31, 1909, a total of \$679,545,740 of United States bonds to secure circulation and \$52,341,800 of the same to secure government deposits, besides about \$23,000,000 such bonds on hand. These banks thus owned about 80 per cent. of the interest-bearing bonded debt of the United States. In addition, national banks held a total of \$898,388,000 of other bonds, of which 38 per cent. were railroad bonds, 17 per cent. were State, county and municipal bonds, and 18 per cent. were the bonds of public service corporations other than railroads. The money held by national banks included \$519,440,000 gold and gold certificates; \$146,987,000 silver coin and silver certificates, and \$187,673,000 legal tender notes.

The aggregate capital, September 1, was \$944,642,000; surplus, \$597,981,800, and undivided profits, \$203,756,000. Circulation outstanding November 1, was \$703,940,000, an increase of about 6 per cent. over the amount reported for November, 1908. This included \$25,595,000 secured by lawful money. The increase was partly due to the organization of new banks, but mainly due to the withdrawal of government deposits. That is, the government reduced its deposits with national banks from \$111,802,000 in November, 1908, to \$35,226,900 in September, 1909; the banks used the bonds thus released as the basis for increased circulation. Not only was the circulation greater than ever before, but it bore a larger ratio to capital (69.6 per cent.) than at any time since 1881. Of the circulation about 42 per cent. was ten-dollar notes, 28 per cent. in twenties, 20 per cent. in fives, and most of the remainder in fifties and one hundreds. An important item in computing the net earnings of banks on circulation during 1909, was the decline in the value of the 2 per cent. consols, which comprise about 90 per cent. of the bonds deposited to secure circulation. Their market value in November, 1908, was 103.752; in October, 1909, 101.052.

During the year 149 national banking associations voluntarily liquidated; of these 25 were absorbed by other national banks; 14 were absorbed by other kinds of banks; 83 reorganized as State banks; 2 became new national banks; and 25 quit business. Almost all of those reorganized as State banks were in Oklahoma and desired to take advantage of the deposit guarantee law.

In September, 1908, the National Monetary Commission (see BANKS AND BANKING) sent out a circular letter of inquiry to national bankers throughout the country with reference to administrative changes deemed desirable. Thereafter the Comptroller, his official staff and the Secretary of the Treasury held a hearing at which members of the American Bankers Association presented views on desirable reforms. A point much emphasized was the proposal to limit the amount of a single firm's paper that any one bank may discount, in the same manner that loans to one person or firm

are now limited. The circular letter, and the hearings have been published. Early in the year the Comptroller, in continuation of the policy begun in 1908 of increasing the efficiency of bank examinations, required examiners to give bond in the sum of \$20,000, and to take an oath of office. He also appointed an examiner at large, whose duty it shall be to visit banks reported to be in bad condition and remain with them until their status is satisfactory. At the same time the Comptroller forbade examiners being stockholders or borrowers of any bank in the system, thus rooting out a condition that had aroused criticism. This last order followed an extensive inquiry by the Comptroller, which showed that most of the examiners were borrowers at national banks, many were stockholders and a few were even officers.

It was in continuance of this policy of correcting abuses and extending proper control that late in November the Comptroller called attention of bankers to the practice of making overloans, and stated that should this continue he would require the forfeiture of the charters of offenders. About three years ago investigation showed that more than 60 per cent. of the banks were violating that provision of the law fixing the maximum loan at 10 per cent. of capital. The law was subsequently amended, now permitting a loan to any one client equal to 10 per cent. of the combined capital and surplus, but not in excess of 30 per cent. of the capital. Even this liberal provision has been violated by more than 15 per cent. of the banks. At the same time the Comptroller requested banks to hold directors' meetings at least once each month. To enforce such request is not within the power of the Comptroller, but he solicited the coöperation of the banks to this end. Effort will be made to have included in the by-laws of banks hereafter chartered a provision of monthly directors' meetings for the approval of loans, before the charter is granted. See BANKS AND BANKING, CURRENCY, and FINANCIAL REVIEW.

NATIONAL CIVIC FEDERATION. See CIVIC FEDERATION, NATIONAL.

NATIONAL CIVIL SERVICE REFORM LEAGUE. See CIVIL SERVICE REFORM LEAGUE, NATIONAL.

NATIONAL CONFERENCE OF CHARITIES AND CORRECTIONS. See CHARITY ORGANIZATION.

NATIONAL CONSERVATION ASSOCIATION. See CONSERVATION ASSOCIATION, NATIONAL.

NATIONAL FORESTS. See FORESTRY.

NATIONAL MONETARY COMMISSION. This Commission was provided for by the Aldrich-Vreeland Emergency Currency Act of May 30, 1908, and consists of nine Senators and nine Representatives. Since its organization, with Senator Aldrich as its chairman, it has made extensive studies of banking and currency conditions in all parts of the world. It has employed experts for numerous lines of research and has not spared expense in the furtherance of its inquiries. It has determined not to urge legislation before the winter of 1910-11, and has, meanwhile, begun a publicity campaign for the purpose of winning favor for the central bank idea. To this end it has organized a press bureau for the distribution of news-

paper material. At the same time the Commission has announced that it will publish somewhat more than fifty monographs and documents prepared for it by economists and special investigators. Among these are the following: *The First Bank of the United States*, by Dr. J. T. Holdsworth; *The Second Bank of the United States*, and *The History of State Banks before the Civil War*, by Davis R. Dewey; *The Safety-Fund Banking System in New York*, by Dr. R. E. Chaddock; *The Origin of the National Banking System*, by Andrew M. Davis; *History of Crises under the National Banking System*, by Dr. O. M. W. Sprague; *A History of the National Bank Currency*, by A. D. Noyes; *The Use of Credit Instruments*, and *The Development of the Independent Treasury System*, by Dr. David Kinley; *Seasonal Variations in the Demand for Currency and Capital*, by Dr. E. W. Kemmerer; *The Foreign Balance of the United States*, by John E. Gardin; *Clearing House Methods and Practices*, by J. G. Cannon; *The History of Banking in Canada*, by R. M. Breckenridge; *The Canadian Banking System*, by Dr. J. F. Johnson; *The English Banking System*, by Hartley Withers; *The History of Banking in England*, by H. S. Foxwell; *The Evolution of Credit and Banks in France*, by André Liesse; *The Bank of France in its Relations to Credit*, by Maurice Patron; *The French Banking System*, by Albert Aupetit; *The Great German Banks*, by Dr. J. Riesser; *Banking in Italy*, by Carlo F. Ferraris; *The Swedish Banking System*, by A. W. Flux; and *The National Bank of Belgium*, by Charles A. Conant. See BANKS AND BANKING; FINANCIAL REVIEW; CENTRAL BANK; and other articles on kindred topics.

NATIONAL MUSEUM, UNITED STATES.

See UNITED STATES NATIONAL MUSEUM.

NATURAL GAS. The total production of natural gas in 1908 was 402,140,730,000 cubic feet, valued at \$54,640,375 as compared with 406,408,622,119 cubic feet in 1907. The value remained practically the same. This slight increase continues the remarkable increase in the growth of this industry from 1882, when the value of the production was only \$215,000. The production of natural gas has become one of the great established industries of the country. Its development is shown by the extension of the gas districts in the Appalachian fields, by the development of the Mid-Continent and Gulf fields, which has practically only begun, and by the systematic efforts made to conserve the consumption of this fuel. The history of the industry shows an increasing quantity consumed for industrial purposes and an increased price for the gas. Pennsylvania is first among the States in the production of natural gas, with West Virginia second, and Kansas third.

NATURAL HISTORY, AMERICAN MUSEUM OF. An institution established in New York City in 1869 for the purpose of maintaining a museum and library of natural history, and advancing knowledge of kindred subjects. Admission to the museum is free, as pay days were abolished in 1907. In 1909 the State appropriated for the maintenance of the museum \$180,000, while there was appropriated by the trustees and others for collections, expeditions, publications, etc., \$176,008. The permanent endowment on December 31, 1909, was \$2,195,645. The new installations during

the year included several new habitat bird groups, a group of Rocky Mountain sheep, various cetaceans, three new meteorites and the rearrangement of the Jesup wood collection. Exploring parties representing the museum were maintained during the year in the Congo, British East Africa, Tahiti and the South Sea Islands, Arctic America, Mexico, Central America, British Columbia, Alaska, Wyoming, Montana, Southwestern United States, Florida, Massachusetts, Philippines, Borneo and Celebes. Mr. Carl E. Akeley has been commissioned to prepare an African elephant group and was in Africa during the year collecting material for this group. Several animals were contributed by Mr. Roosevelt, whom Mr. Akeley met in British East Africa.

Among the special exhibitions held at the museum during the year were the Tuberculosis Exhibition; the "Indians of Manhattan Island and Vicinity," arranged in connection with the Hudson-Fulton celebration, and the zoölogical and ethnological material brought from the Arctic regions by Commander Peary. Among the gifts, in addition to those mentioned above, were a large collection of anthropological specimens from the Fiji Islands, a specimen of the Dinosaur *Trachodon* with epidermal impressions, and the Cape York, or Peary Meteorite, including Ahnighito, the largest known meteorite. All of these were the gift of Mrs. Morris K. Jesup. The principal contributions to the endowment fund during the year were bequests of \$10,000 each from William R. Sands and Phebe Anna Thorn. The total membership of all classes on December 31, 1909, was 2372, a net increase of 224 for the year. The president is Henry F. Osborn.

NATURAL RESOURCES, CONSERVATION OF. See FORESTRY, LANDS, PUBLIC and UNITED STATES, paragraphs *Administration*.

NAVAL PROGRESS IN 1909. The increase in the naval strength of the great Powers of the world continued unabated in 1909, and the struggle to be in a position of naval supremacy was largely in evidence in the budgets and government policies of the different nations. The accompanying tables indicate clearly and concisely the strength of the naval forces of the world Powers and show the important increases that are being made, especially in the more powerful battleships.

The construction of a powerful navy by Germany continued to excite great anxiety in England and it was stated in the House of Commons that the Admiralty must be placed in a position to give the preliminary orders for the armament and equipment of four more *Dreadnoughts*. It was announced in July that those needed would be laid down at the end of the financial year independently of the programme adopted for the ensuing year. A comparison of the budgets for new construction and armament in Germany and Great Britain in 1908 showed a difference of only half a million pounds, the German vote being £10,751,466. In 1909 the total vote for the maintenance and expansion of the German fleet was £21,704,411, of which £12,177,500 was exclusively for construction and armaments. Thus it will be seen that the provision of a great navy is a serious financial undertaking and that it was Great Britain's policy to force Germany to reduce her shipbuilding pro-

gramme by the triumph of British competition and armaments and by the financial embarrassment likely to be experienced in connection with her great army and her increased naval strength, which was becoming second only to that of Great Britain. Great Britain's position further was strengthened by the co-operation of the dominions abroad. Evidences of important progress are to be seen in the armored vessels building in England, which were battleships of the *Dreadnought* type, and armoured cruisers of the *Invincible* type. Both classes were all-big-gun, one calibre ships; but, in the cruisers, the speed was increased about 25 per cent. and the armament and armor correspondingly reduced. Six armored ships were begun in 1909; seven were building, of which four were completed, and are in commission with the home fleet.

In 1909 the *Dreadnought* programmes of England and Germany were the same. Three battleships and one armored cruiser were provided for on each side, while, in addition, there was the "conditional" British programme of 4 ships, to be commenced on April 1, of 1910. It was supposed that the first three battleships would resemble the *Neptune*; while the "conditional" three would mount the new 13.5 inch gun. The cruisers probably would each carry 10 12-inch guns, and steam some 28 or 29 knots. The 1909 German vessels would, it was believed, be the same as these of 1908, except that they all were to be equipped with turbines.

Dreadnoughts	Great Britain	Germany
Completed	8	2
Launched	4	7
Building	4	4
Ordered	†4	*4

†The four ordered are the "conditional" ships; they include the one provisionally ordered from the Thames Ironworks.

*These ships (3 battleships, and 1 armored cruiser) belong to the 1910-1911 programme.

The 13 German ships built or building were to mount 150 guns of 11 inch and 12 inch calibre, to 152 of the 16 British ships; while the Germans have a considerable superiority in secondary armaments.

For the design and construction of the battleships themselves and their armament the reader is referred to the article BATTLESHIPS.

ORGANIZATION. Changes in character of fighting ships and their armament led to new methods of organization in several important navies, all with the object of securing increased military and administrative efficiency. In the United States, the Newberry plan was succeeded by the Meyer plan. The first (January 25, 1909), made the naval constructor at navy yards the principal technical assistant of the Commandant responsible for the efficiency of the manufacturing force. The second again put line officers in control in the navy yards; it also gave the Secretary of the Navy four aids as advisers, to be, as far as practicable, flag officers, for personnel, operations, material, and inspections; the Bureaus were to conduct business with the Secretary through the proper aid. The Marine guard, withdrawn by President Roosevelt, were returned to ships, in accordance with provisions of the Appropriation Bill. (See UNITED STATES section Navy.) In France, the Minister of Marine, Admiral de Lapeyrère, reorganized the Navy Department; and appointed four admirals as inspectors of the fleet. A corps of Naval Ordnance Engineers was created on November 6; the anomaly of having naval guns designed by the Colonial Artillery has therefore ended. The British Navy War Council was established in October to study naval strategy, and work out naval war plans. All its members are *ex-officio*: President, First Sea Lord, as Chief of Staff; the Heads of the Naval Intelligence Department, and of the Naval Mobilization Department.

DISTRIBUTION OF FORCES. The United States Pacific Fleet was separated into a Pacific and an Asiatic Fleet; the former consisting of eight armored cruisers; the latter, of one coast defense ship, protected cruisers, gunboats, and one torpedo flotilla. The British Home Fleet was also reorganized: The Channel Fleet became part of it; and there was a rearrangement of the cruiser squadrons and torpedo flotillas. The distribution was 16 fully manned battleships, in two divisions, with 6 battleships of the Atlantic Fleet associated with them (the Atlantic Fleet was to use both Dover and Berehaven as bases), making 22 fully manned battleships in home waters. Ten fully manned armored cruisers, in two squadrons; associated with them was the squadron of 4 armored cruisers of the Atlantic Fleet, making a total

PERSONNEL OF IMPORTANT NAVIES

Rank	England	France	Germany	Japan	United States
Admirals of the Fleet	6	.....	.....	1	(*)
Admirals	13	.....	5	5	.....
Vice Admirals	22	15	11	21	.....
Rear Admirals	55	30	20	41	27(d)
Captains and Commanders	625	338	274	273	212(d)
Other line officers	2,326	1,368	1,425	1,436	934(d)
Midshipmen at sea	408	147	208	193	313
Engineer officers	987	576	363	534	.....
Medical officers	513	385(b)	260	327(b)	296
Pay officers	585	193	207	294	201
Chaplains	129	.....	.....	.....	22
Warrant officers	2,105	1,810(c)	2,308	1,404	606
Enlisted men	99,300	49,312	47,467	41,906	43,490
Marine officers	467	.....	104	.....	334
Enlisted men (Marines)	20,991(a)	.....	1,415	.....	9,112
Total	128,522	54,174	54,067	46,485	55,548

* The Admiral of the Navy.

(a) Includes 3,267 men of Coast Guard.

(b) Includes pharmacists and apothecaries.

(c) Includes adjutants, maitres, and premier maitres of all branches.

(d) The United States has now temporarily, as extra numbers, due to promotion for war service, 9 flag officers, 10 captains, 9 commanders, 11 lieutenant-commanders, and 4 lieutenants.

of 14 fully manned armored cruisers in home waters, exclusive of 5 armored cruisers employed at sea on training service. There were also in the fully manned division 10 attached cruisers and scouts, 48 destroyers, and various auxiliary vessels. The nucleus crew ships, including the remainder of the destroyers, the submarines, and the special service vessels with reduced nucleus crews are organized as two additional divisions of the Home Fleet under a vice-admiral. In October, the French Mediterranean force became the First Squadron; the Northern Squadron became the Second Squadron. Each squadron consists of 6 battleships, 4 armored cruisers, 1 first class protected cruiser, and a flotilla of 12 destroyers. A battleship and an armored cruiser, with half crews, were assigned as a reserve for each squadron. Neither squadron was permanently attached to any port, as was previously the case.

Docks. The construction of improved *Dreadnoughts* necessarily required new and larger docks. The United States contracted for a dry dock at Pearl Harbor, Hawaii; to be 600 ft. long, and 140 ft. wide outside coping. See **DRY DOCKS**.

Japan laid the corner stone of a third dry dock at Kure, to be completed in 1911; length, about 200 m.; to take vessels of 30,000 tons. France had 4 dry docks that could barely take in a vessel of the *Danton* class, 18,350 tons, but their entrances were to be enlarged and six new, larger dry docks were to be built. The Brazilian government ordered a floating dock, of the bolted sectional self-docking type, from Vickers Sons and Maxim, to take the *Minas Geraes* class. The pontoon was to be in three sections; total length, 550 ft. 6 in.; clear width at entrance of 100 ft.; to take battleships drawing 36 ft., and displacing 22,000 tons. The construction of two docks, similar to that ordered by Brazil, was also decided upon by the British Admiralty. In reply to a question involving only the countries named, the British First Lord of the Admiralty stated during the year that the number of docks actually capable of taking a *Dreadnought* was: British Empire, 23; German Empire, 6; France, 5 (should be 4); United States, 5.

ORDNANCE GUNS. A 12 inch, 50 calibre gun, of new design, was completed and tested in the United States. In proof, it gave an initial velocity of 3030 feet a second; muzzle energy, 52,500 foot tons. In five rounds, fired at 17,000 yards range, the dispersion was less than 100 yards. A new type of 14 inch, 45 calibre gun was also made, and initially tested on December 21; projectile, 400 lbs.; charge, 365 lbs.; initial velocity, 2600 f. s.; muzzle energy, 65,600 f. t.; weight, about 63 tons. A mount for this gun has been designed. The British Mark XI., 12 inch, 50 calibre gun was not satisfactory on its trials. The Mark X. was an all wire gun; but, in Mark XI., the wiring was not continued over the chase end of the barrel; and, on proof, this portion of the gun showed weakness. The wiring, it was determined, should be continued to the muzzle. A 13.5 inch gun was made at Woolwich; and was mounted on board the *Excellent*. An improved 4 inch, breech-loading rifle, with high velocity, was introduced into the British service. During 1909, the older types of 12 inch mountings were being brought up to date; and ships carry-

ing them are generally being fitted with modern sights, and elevating and training control gear. The *Invincible* was the only ship in the British Navy using electrical control for her 12-inch guns and turrets, the British having clung to hydraulic power, in spite of the success of electrical control in the American Navy. At the *Invincible's* trials, her electric control gear proved a comparative failure, increased speed of working as against hydraulic gear not being realized. Nevertheless, electric control met with much favor among the younger gunnery officers.

GUNPOWDER. In the United States, powder was made more uniform; its safe life having been prolonged by the addition of a very minute quantity of a substance found to protect stability. A new government powder factory was established at the Torpedo Station, Newport, R. I., and was in operation at the close of the year. In France, after the *Jena* disaster, it was decided to isolate the black powder; and lower the temperature of all ammunition rooms. It was claimed that the French 12-inch gun could fire 300 rounds; the Italian, only 80; the British, 100; the difference being due, not to the gun, but to the French powder, which contains no nitroglycerine. "B" powder was good as to stability, preservation of the gun, and uniform ballistics. Accidents aboard ship have been due to neglect of the regulations, not to "B" powder.

PROJECTILES. In the United States, improvements in form gave a very material increase in range, with a corresponding flatness of trajectory, increase in danger space, striking velocity, and penetration. A change in the rotation band was expected to prolong the life of the gun by insuring true flight of the projectile after the tube was worn.

FIRE CONTROL. The American lattice or skeleton fire control mast did not meet with favor in other navies. The observers are entirely exposed; and it was claimed that vibration of the mast will prevent accurate observations. All the battleships of the United States Atlantic Fleet were fitted with them, after a thorough test on the Monitor *Florida*. During the year, there were notable improvements in range finders; and several new types of instruments for the transmission of range and deflection were under consideration. In England, extensive experiments were carried out in the effort to perfect a system for automatically controlling the fire of all the guns of a ship from one station. The British retained the tripod mast, usually two to a ship; but it was probable that in future ships there would be only one fire control mast. There was a tendency to control gun fire from behind armor. The *Neptune* had her fire control station amidships, between the two funnels and tripod masts. It was said that the *Lion* will have an armored tower as a fire control station.

WIRELESS TELEGRAPH. The United States scouts *Birmingham* and *Salem* were equipped with a system capable of sending and receiving for at least one thousand miles under all conditions, and of sending and receiving for three thousand miles under favorable conditions. Extensive experiments at sea, at long distances, were carried out with these ships. A high power station at Washington was contracted for, with a radius of 3000 miles by day and night, capable of overcoming inter-

Type of Vessel	No.	GREAT BRITAIN		GERMANY	
		Built	Building	Built	Building
Battleships* (Dreadnought type).....	4	Tons 73,700	No. 7 Tons 153,000	No. 2 Tons 36,000	No. 6 Tons 118,000
Battleships, first class**	49	714,750	.....	24	282,424
Coast-defense vessels† .....	.....	.....	.....	8	32,378
Armored cruisers†† (Invincible type).....	3	51,750	2 38,000	.....	3 65,000
Armored cruisers	35	416,600	.....	9	86,693
Cruisers above 6,000 tons‡	18	176,250	.....	.....	.....
Cruisers 6,000 to 3,000 tons‡	40	180,630	8 34,070	22	89,503
Cruisers 3,000 to 1,000 tons‡	24	51,675	.....	17	37,626
Torpedo-boat destroyers	148	63,038	20 18,318	79	38,457
Torpedo boats	69	15,014	.....	33	5,819
Submarines	55	14,943	12 4,135	4	800
Total tons built and total tons building.....	.....	1,758,350	247,523	609,700	210,992
Total tons built and building.....	.....	2,005,873	.....	820,692	.....

Type of Vessel	No.	UNITED STATES		FRANCE	
		Built	Building	Built	Building
Battleships* (Dreadnought type).....	2	Tons 32,000	No. 4 Tons 83,650	No. 17	Tons 216,270
Battleships, first class**	25	334,146	.....	10	59,140
Coast-defense vessels†	6	23,299	.....	.....	.....
Armored cruisers†† (Invincible type).....	12	157,445	.....	21	192,982
Armored cruisers	5	43,800	.....	3	24,036
Cruisers above 6,000 tons‡	17	61,124	.....	12	48,505
Cruisers 6,000 to 3,000 tons‡	13	16,686	.....	5	11,766
Cruisers 3,000 to 1,000 tons‡	17	7,390	19 13,910	56	18,032
Torpedo-boat destroyers	30	5,177	.....	259	24,270
Torpedo boats	12	1,718	15 5,342	48	8,919
Submarines .....	.....	.....	.....	.....	.....
Total tons built and total tons building.....	.....	682,785	102,902	602,920	163,986
Total tons built and building.....	.....	785,687	.....	766,906	.....

Type of Vessel	No.	JAPAN		RUSSIA	
		Built	Building	Built	Building
Battleships* (Dreadnought type).....	12	Tons 171,898	No. 2 Tons 41,600	No. 6	Tons 62,600
Battleships, first class**	3	18,786	1 19,800	4	21,380
Coast-defense vessels†	1	14,600	1 14,600	.....	.....
Armored cruisers†† (Invincible type).....	11	108,900	.....	7	70,200
Armored cruisers	2	13,130	.....	7	46,460
Cruisers above 6,000 tons‡	8	80,450	3 14,130	1	3,100
Cruisers 6,000 to 3,000 tons‡	7	14,558	.....	7	8,800
Cruisers 3,000 to 1,000 tons‡	56	20,188	3 2,530	97	86,254
Torpedo-boat destroyers	69	6,332	.....	56	6,734
Torpedo boats	10	1,526	2 626	25	3,735
Submarines .....	.....	.....	.....	.....	.....
Total tons built and total tons building.....	.....	400,368	93,336	259,263	152,987
Total tons built and building.....	.....	493,704	.....	412,250	.....

Type of Vessel	No.	ITALY		AUSTRIA	
		Built	Building	Built	Building
Battleships* (Dreadnought type).....	10	Tons 122,600	No. 1 Tons 18,600	No. 3	Tons 31,800
Battleships, first class** .....	.....	.....	.....	6	41,700
Coast-defense vessels† .....	.....	.....	.....	3	18,800
Armored cruisers†† (Invincible type).....	8	58,960	2 19,760	.....	.....
Armored cruisers .....	.....	.....	.....	2	8,000
Cruisers above 6,000 tons‡	9	19,320	1 3,000	3	7,050
Cruisers 6,000 to 3,000 tons‡	17	6,593	.....	6	2,400
Cruisers 3,000 to 1,000 tons‡	61	8,478	2 420	31	4,547
Torpedo-boat destroyers	7	1,087	.....	2	600
Torpedo boats .....	.....	.....	.....	.....	.....
Submarines .....	.....	.....	.....	.....	.....
Total tons built and total tons building.....	.....	216,038	41,780	114,897	52,400
Total tons built and building.....	.....	257,818	.....	167,297	.....

* Battleships having a main battery of all big guns. (11 inches or more in calibre.)

** Battleships, first-class are those of (about) 10,000 or more tons displacement.

† Includes smaller battleships and monitors.

†† Armored cruisers having guns of larger calibre in main battery and capable of taking their place in line of battle with the battleships. They have an increase of speed at the expense of carrying fewer guns in main battery and a decrease in armor protection.

‡ All unarmored war ships of more than 1,000 tons are, in this table, classed according to displacement as cruisers. Scouts are considered as cruisers in which battery and protection have been sacrificed to secure extreme speed. The word "protected" has been omitted because all cruisers except the smallest and oldest now have protective decks.

The following vessels are not included in the tables:

Those over twenty years old, unless they have been reconstructed and rearmed since 1900.

Those not actually begun, although authorized.

Transports, colliers, repair ships, torpedo depot ships, converted merchant vessels, or yachts.

Vessels of less than 1000 tons, except torpedo craft.

Torpedo craft of less than 50 tons.

ference and static discharges; and insuring secrecy of operation. See WIRELESS TELEGRAPHY.

MOTIVE POWER. In the United States, electric propulsion was discussed; two methods have been proposed, the "combination drive," and the "electric drive." In the first, use is made of both electric motors and low pressure steam turbines for driving the propeller shafts; in the latter, this propulsion is wholly by electric motors. Liquid fuel is now used in the United States navy as an auxiliary of coal after many thorough tests. Water tube boilers had been, or were being, installed in all British armored vessels in course of completion, or under construction. Oil burning appliances had been completed in 10 armored vessels; and all armored vessels under construction were being fitted to burn oil in conjunction with coal in the boilers as an alternative fuel, the full power being obtainable in these vessels by the use of coal alone. The turbine has been proved best for all kinds of naval vessels, needing little attention, and no great skill in operating, a small engine and fireroom force; full power is easily maintained; it can be worked at any proportion of full power; the machinery lies low in the ship; and weight is saved. See STEAM TURBINE.

NAVARRO, JOSÉ FRANCISCO DE. A Spanish-American engineer and financier, died February 3. He was born in Spain in 1833. He was educated for the navy, but when a mere youth he went to Havana, Cuba, and engaged in the study of mechanics and railroading. In 1852 he went to Philadelphia, but returned soon to Cuba, where he formed the Mercantile Company of Cassanova and de Navarro. He came to New York in 1855, where he founded the first line of steamers plying from New York to Brazil. He established later the Commercial Warehouse Company, and the Ingersoll Rock Drill Co. Among the important constructions carried on by Mr. de Navarro was the Metropolitan Elevated Railroad. He built also the first modern apartment house in New York City. A son of Mr. de Navarro married Mary Anderson.

NEBRASKA. One of the North Central Division of the United States. Its area is 77,530 square miles. Its population in 1909, according to a Federal estimate made in that year, was 1,069,579.

MINERAL PRODUCTION. Although there are deposits of several minerals of importance in Nebraska the resources of the State are in process of development. One fairly good coal mine is operated and others are projected. There are deposits of silica, and sand and gravel exist in large quantities. There is also a considerable amount of good building stone. The clay products are of considerable importance, amounting in 1908 in value to \$956,516 as against \$953,432 in 1907. During 1908 boring for oil was carried on in several localities. The total value of the mineral products of the State in 1909 was \$1,425,388 as compared with a value of the product of 1907 of \$1,383,916.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to the figures of the United States Department of Agriculture, were as follows: Corn, 194,060,000 bushels, valued at \$97,030,000 from 7,825,

000 acres; winter wheat, 45,590,000 bushels, valued at \$40,575,000 from 2,350,000 acres; spring wheat, 4,060,000 bushels, valued at \$3,613,000 from 290,000 acres; oats, 61,825,000 bushels, valued at \$21,639,000 from 2,473,000 acres; barley, 2,640,000 bushels, valued at \$1,135,000 from 120,000 acres; rye, 1,320,000 bushels, valued at \$803,000 from 80,000 acres; flaxseed, 136,000 bushels, valued at \$166,000 from 16,000 acres; potatoes, 8,190,000 bushels, valued at \$4,914,000 from 105,000 acres; hay, 2,325,000 tons, valued at \$13,957,000 from 1,550,000 acres. The corn crop of 1909 was considerably smaller than that of 1908, which was 205,767,000 bushels. The winter wheat crop increased in 1909 by about 5,000,000 while the crop of spring wheat was slightly larger than in 1908. The oat crop in 1909 was considerably larger than in 1908, which was 56,078,000 bushels. The rye crop, however, fell off slightly in 1909. The potato crop increased by about 1,000,000 bushels, while the hay crop decreased by about 1,000,000 tons. The farm animals of the State on January 1, 1910, were as follows: Horses, 1,045,000; dairy cows, 879,000; other cattle, 3,040,000; sheep, 393,000; swine, 3,201,000. The wool clipped in 1908 was estimated at 2,172,240 pounds.

EDUCATION. The pupils enrolled in the public schools of the State in 1908 numbered 280,581. This was 26.24 per cent. of the population. The average daily attendance was 191,152. The number of teachers was 10,355. A law was passed in 1907 which raised the standard for private and denominational schools permitted to grant certificates, and raised the minimum entrance requirements of State normals schools to two years of high school education. Other laws passed in the same year provided for four years of free high school opportunity for every child completing the elementary work, tuition to be paid by districts not having four-year high schools.

FINANCE. The report of the State Treasurer for the biennium 1906-8, showed a balance on December 31, 1906, of \$331,900. The receipts from December 1, 1906, to November 30, 1908, inclusive, amounted to \$12,685,147, while the disbursements were \$12,632,610, leaving a balance on hand November 30, 1908, of \$384,437. The trust funds of the State are invested in the permanent school fund, university fund, agricultural college endowment fund and the normal college endowment fund.

POLITICS AND GOVERNMENT. On January 7, A. C. Shallenberger was inaugurated Governor of the State. In his address he advocated a bank deposit guaranty law, by which a tax of one per cent. was to be levied on all bank deposits, the sum to be collected in four equal installments within eighteen months, after which an annual tax of one-tenth of one per cent. will be collected as additional security. An assessment of not to exceed two per cent. may be levied to meet any emergency. The one per cent. tax will raise a fund of \$642,000, which is to be deposited in the banks that will furnish surety bonds for its safety. Such a bill was introduced into the legislature and was passed. It was signed by Governor Shallenberger on March 25. The bill as finally signed by the Governor is a limited guaranty as distinguished from the Oklahoman law, where all the assets of all the banks are back of the guaranty. In Nebraska only a small portion is

utilized. Four semi-annual assessments of one-fourth of one per cent. each are to be levied by the banking board upon the deposits of the banks, and after the accumulation of this fund it shall be maintained by the assessment every six months of one-twentieth of one per cent. If an emergency arises an assessment not exceeding one per cent. a year may be made. If this is insufficient to pay losses, depositors in failed banks must await the accumulation of the money necessary to pay them off, receiving a certificate as evidence of claims. (See BANKS AND BANKING.) Municipal elections were held during the year on the question of license or no license. On April 6, 25 towns voted license and 20 no-license, and on April 14, 82 of the 150 cities and villages voting, voted for license and 68 against. A bill was passed by the legislature and signed on April 8 by Governor Shallenberger forbidding the sale of liquor except between 7 A. M. and 8 P. M. The bill went into effect July 6.

The Republican State Convention was held at Lincoln on July 27. The Convention unanimously endorsed the action of Senators Brown and Burkett in voting against the Aldrich tariff bill, which was denounced as a betrayal of the party's pledge and faith. President Taft was called upon to veto the bill if not remodeled according to his wishes. The amendment adopted by Congress, submitting to the several States for their action a proposed constitutional amendment empowering the Federal government to lay and collect taxes on incomes, was indorsed. By common consent the temperance issue was laid aside until 1910. Nominations for local officers were made. The Democratic State Convention was held upon the same date and a platform was adopted which denounced the tariff bill and accused the Republicans of stealing the income tax plank of the Democratic national platform. Governor Shallenberger was asked to call a special session of the legislature to adopt the amendment. Other planks favored a national constitutional amendment for the election of Senators by direct vote and a State constitutional amendment for the adoption of the initiative and referendum. Like the Republicans, the Democrats postponed action on the temperance question. There was no lack of agitation in regard to temperance in the State, however, and a union of all State temperance organizations was undertaken in August for the purpose of taking a vigorous hand in the politics of the State and ensuring the more complete enforcement of the liquor laws. The new organization is to be known as the State Temperance Union and while it will be quasipolitical in nature, the question of the party will not be considered in the selection or endorsement of candidates. In the elections on November 2, the Republicans elected their entire tickets in Douglaston and Lancaster counties, in which Omaha and Lincoln are respectively situated. In South Omaha the Democratic city ticket was elected. On July 13, the election law, under which elections have been held, was declared unconstitutional. See ELECTORAL REFORM.

OTHER EVENTS. On February 21 there were serious riots in South Omaha, incited by inflammatory speeches against the Greeks of the city. Previous to the outbreak a mass meeting of citizens was held to protest against the

presence of the Greeks in the city, and at the appointed time, 10,000 men, mostly packing house men, thronged the streets, and immediately after the meeting adjourned started for the Greek quarter. Many Greeks were injured and some thirty buildings occupied by or belonging to them were wrecked. The hostility towards the Greeks was occasioned by the murder of a policeman by a Greek.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those given below: A measure was passed establishing a compulsory system of guaranty of bank deposits. An occupation tax was levied upon corporations. The election laws were amended to secure "a more certain selection for the people's choice of United States Senators." A pure food law was enacted and measures were passed regulating the sanitation of hotels. The sale of liquor on Sunday and between the hours of 8 P. M. and 7 A. M. on any week day is forbidden. Provision was made for the care of indigent consumptives. Railroad companies are penalized for delay in settlement of claims and provision is made for the physical valuation of all railroad properties. An act was passed looking to the abolition of secret fraternities in public schools.

OFFICERS: Governor, A. C. Shallenberger, Dem.; Lieutenant-Governor, M. R. Hopewell; Secretary of State, George C. Junkin; Treasurer, L. G. Brian; Auditor, Silas A. Barton; Attorney-General, W. T. Thompson; Superintendent of Education, E. C. Bishop; Secretary of Agriculture, W. R. Mellor; Commissioner of Public Lands, E. B. Cowles—all Republicans, except Shallenberger.

JUDICIARY. Supreme Court: Chief Justice, Manoah B. Reese; Justices, Chas. B. Letton, Jesse L. Root, Jacob Fawcett, William B. Rose, John B. Barnes, and Samuel H. Sedgwick; Clerk, H. C. Lindsay—all Republicans.

The State Legislature of 1909 was composed of 13 Republicans and 20 Democrats in the Senate and 31 Republicans and 69 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

NEBRASKA, UNIVERSITY OF. An institution of higher learning at Lincoln, Nebraska, founded in 1869. The attendance in 1908-9 was 3611, with a faculty of 225. There were 85,000 books in the library. There were many important changes in the faculty during the year. The most important was the inauguration of Samuel Avery (q. v.) as Chancellor to succeed Benjamin Andrews, resigned. Robert H. Wolcott was made acting dean of the medical college to succeed Henry B. Ward, resigned. William G. Hastings was appointed dean of the college of law to succeed George P. Costigan, resigned. Legislation of 1909 changed organization from five colleges to seven. They are: Graduate college; college of arts and science; college of agriculture; college of engineering; a teachers' college; college of law; and a college of medicine. The University is supported by the State.

NECROLOGY. The following list includes the names of notable persons who died in the year of 1909. An asterisk prefixed to a name signifies that an obituary of the person appears as a separate article in its alphabetical order. Most of the entries contain the dates of

birth and death, but in some instances they were not obtainable.

Abahoony, Yznik. Head of the Armenian Church in America. Died March 14; born 1843.

* A'Beckett, Arthur William. English writer and dramatist.

Abercrombie-Miller, Frederick A. American naval officer. Died November 8; born 1843.

Adelaide, Princess. Dowager Duchess of Braganza. Died December 17; born 1831.

Ahrendt, Carl Frederick William. German actor. Died January 11; born 1843.

* Albaugh, John W. An American actor and theatrical manager.

Albeniz, Isaac. Spanish composer. Died May 19; born 1862.

Alma-Tadema, Laura Theresa (Epps), Lady. English artist and writer. Died August 16.

* Amador, Manuel. Founder and first president of the Republic of Panama.

Ament, William S. American missionary to China. Died January 6; born 1851.

Andersen, Joachim. Danish composer. Died May 8.

* Angell, George Thorndike, American humanist.

Appleton, George Webb. American dramatist and author. Died June 12; born 1845.

Arango, José Augustin. Panaman diplomat. Died May 10; born 1839.

Arco-Valley, Emmerich, Count von. German minister to Brazil. Died July 16; born 1852.

* Armstrong, Frank C. American soldier.

Arnold, John Knowlton. American artist. Died May 31; born 1834.

* Arnold-Forster, Hugh Oakley. English statesman.

* Augur, Jacob Arnold. American army officer.

* Babcock, John Breckenridge. American military officer.

* Babcock, Joseph Weeks. American legislator.

Bacher, Otto Henry. American artist. Died August 16; born 1856.

Badeni, Casimir. Former Austrian premier. Died July 9; born 1846.

* Bain, Robert Nisbet. English scholar.

* Baldwin, Elias Jackson. American capitalist.

Baldwin, William Henry. American philanthropist. Died June 8; born 1826.

Balze, Raymond. French artist, died March; born 1810.

* Barber, Amzi Lorenzo. American capitalist.

* Barclay, Charles James. Rear-Admiral (retired) of the United States Navy.

Barfus, Eginhard. German army officer and writer. Died March; born 1826.

Barnard, Edward H. American artist. Died April 16; born 1836.

Barr, John. American yacht racer. Died January 11; born 1850.

Barrett, Richard Cornelius. American educator. Died March 3; born 1849.

* Barrows, Samuel June. American philanthropist and penologist.

Barstow, Frank Quarles. American capitalist. Died August 20; born 1847.

* Barth, Theodor. German publicist.

* Bartlett, Franklin. American lawyer.

* Baskerville, H. C. American teacher.

* Bassermann, Heinrich. German theologian.

* Bates, Alfred Elliott. American army officer.

* Bausman, Benjamin. American German Reformed clergyman.

Beauregard, Marquis Costa de. French academician. Died February 15; born 1835.

Bellery-Desfontaines, Henri. French artist. Died October; born 1867.

* Bent, Sir Thomas. Australian public official.

Bernhardt, Wilhelm. German American educator and author. Died August 12; born 1849.

* Bethea, Solomon Hicks. American jurist.

Bien, Julius. American painter and lithographer. Died December 21; born 1826.

* Birdsall, William W. American educator.

* Bishop, Robert R. American jurist.

Blackburn, D. Asa. American Presbyterian clergyman. Died September 28.

Blackburn, Hugh. Scotch mathematician. Died October; born 1823.

* Blackwell, Henry B. American publicist and editor.

* Blennerhassett, Sir Rowland. British publicist.

Bolles, Charles Pattison. American engineer. Died December 19; born 1823.

Bollinger, Otto von. German pathologist. Died August 14; born 1843.

Borelius, Johan Jakob. German theologian. Died February; born 1823.

Boscowitz, Arnold. French scientist and writer. Died October; born 1827.

* Boyé, Martin Hans. American chemist and geologist.

Bradbury, Colonel Albert Williams. American soldier and lawyer. Died November 27; born 1840.

Brady, Sir Francis. Irish musician. Died August 26; born 1824.

Bristol, John Bunyan. American artist. Died September; born 1826.

* Brooks, Christopher Parkinson. Technical educator.

* Brough, Lionel. English comedian.

* Brower, Daniel Roberts. American neurologist.

Brown, George Hay. Landscape gardener. Died November 24; born 1838.

Brown, John Crosby. American financier. Died June 25; born 1838.

Browne, Causten. American lawyer. Died April 8; born 1829.

* Buchanan, William Insko. American diplomat.

* Buck, Dudley. American composer.

* Buck, Leffert Lefferts. American engineer.

* Bull, William Tillinghast. American surgeon.

Billow, Frieda, Baroness von. German author. Died March 12; born 1858.

* Burke, John Masterson. American merchant and philanthropist.

* Burne, Sir Owen Tudor. English major-general.

* Burt, George Albert. American railway and public official.

* Burton, Frederick Russell. American composer and writer.

* Burton, Michael Arthur (Bass), Baron. English brewer and philanthropist.

Bush, Charles Green. American cartoonist. Died May 21; born 1843.

* Bush, Thomas Greene. American ironmaster and philanthropist.
 * Butler, Arthur Gray. English clergyman and educator.
 * Butler, John George. American Lutheran clergyman.
 * Butler, Matthew Calbraith. American lawyer.
 * Cabell, Benjamin Francis. American educator.
 Cable, Ransom R. American railway official. Died November 12; born 1834.
 Cama, Kharshedji Rustamji. Indian Orientalist. Died September; born 1831.
 * Canfield, James Hulme. American educator and librarian.
 * Carey, Rosa Nouchette. English novelist.
 * Carlos de Bourbon, Duke of Madrid. Pretender to Spanish throne.
 * Carpenter, George Rice. American educator.
 Carr, Joseph W. American educator and editor. Died March 4; born 1871.
 * Carson, Perry. American (negro) politician.
 * Casement, J. S. American soldier and engineer.
 Castles, John W. American financier. Died September 13; born 1858.
 Cazalis, Henri. French poet. Died July; born 1841.
 * Cervera y Topete, Pascual, Comte de Jerez. Spanish admiral.
 Chabrilan, Countess de. French writer and actress. Died February 19; born 1824.
 * Chang Chih-Tung. Chinese statesman.
 Chaplain, Jules Clement. French medallion engraver. Died July 13; born 1839.
 * Chapman, Henry Cadwalader. American physician and naturalist.
 Charpentier, Alexandre. French sculptor and artist. Died March 4.
 * Chase, Solon. American farmer and politician.
 * Chauchard, Hippolyte François, Alfred. French merchant.
 Choisy, F. Auguste. French architect and archaeologist. Died September 20; born 1831.
 Church, Alonzo Webster. American librarian and lawyer. Died August 12; born 1829.
 Clark, Theodore Minot. American architect and writer. Died April 29; born 1845.
 Clarke, Dumont. American banker. Died December 26; born 1840.
 * Cleborne, Christopher James. American surgeon and rear-admiral.
 * Cochran, David Henry. American educator.
 * Collier, Peter Fenelon. American publisher.
 Colman, Julia. American writer and philanthropist. Died January 10; born 1828.
 * Colson, James Major. American (negro) educator.
 Comee, Frederick R. American musician. Died April 16; born 1854.
 Comstock, Alexander. American theatrical manager. Died December 22; born 1858.
 Conner, Phineas Sanborn. American physician and educator. Died March 25; born 1839.
 * Conness, John. Former United States Senator.
 * Conried, Heinrich. American theatrical manager.
 * Converse, George Albert. American rear-admiral.

* Cookson, Bryan. English astronomer.
 Copeland, Alfred B. American artist. Died January 30; born 1839.
 * Coppinger, John Joseph. American army officer.
 * Coquelin, Alexandre Honoré Ernest. French actor.
 * Coquelin, Benoit-Constant. French actor.
 * Corbin, Henry Clark. American army officer.
 * Cosgrove, Samuel G. Governor of Washington. Died March 28.
 * Cotter, Joseph B. American Roman Catholic bishop.
 * Cotton, Charles Stanhope. Rear-Admiral (retired) of the United States Navy.
 Cowing, Earl Harley. American civil engineer. Died November 23; born 1853.
 * Craighill, William Price. American soldier.
 * Crawford, Francis Marion. American novelist.
 * Crawford, Oswald. English writer.
 * Cretoni, Serafin. Cardinal of the Roman Catholic Church.
 * Crittenden, Theodore Thomas. American public official.
 * Crittenton, Charles N. American merchant and philanthropist.
 Crosby, Francis W. American geologist. Died December 22; born 1823.
 Crowell, John. American clergyman and encyclopedist. Died March 29; born 1814.
 Cunningham, John Daniel. Scotch anatomist and educator. Died June 23; born 1860.
 * Currie, Sir Donald. English ship owner.
 * Cushman, Francis W. Representative to Congress.
 * Cust, Robert Needham. English colonial official.
 Cuyler, Cornelius C. American banker. Died July 31; born 1849.
 * Cuyler, Theodore Ledyard. American clergyman.
 * Dandridge, Elizabeth (Taylor).
 * Daniell, Moses Grant. American educator and author.
 * Davidson, John. English poet and playwright.
 * Davis, Mary Evelyn (Moore). American writer.
 Davis, William Heath. California pioneer. Died April 18; born 1822.
 * De Armond, David A. American public official.
 Delmar, Eugene. American chess player. Died February 22; born 1841.
 De Morgan, Henri. French archaeologist. Died December; born 1854.
 * Denison, Charles. American physician.
 Deshler, Charles Dunham. American literary critic. Died May 10; born 1819.
 Deutsch, Samuel. German scholar. Died July; born 1837.
 * Dhanis, Baron. Belgian explorer.
 Dickinson, Lowes. English artist. Died January; born 1820.
 Dickson, James Stuart. American clergyman. Died April 1; born 1859.
 Dignet, Charles. French modist. Died October; born 1836.
 Dillon, Frank. English artist. Died May; born 1823.
 * Dodge, Theodore Ayrault. American soldier.
 * Dods, Marcus. Scotch clergyman.

- * Dohrn, Anton. German zoölogist.
- Dorokontt, George D. American physician and philanthropist. Died July 31; born 1843.
- Draper, Frank Winthrop. American physician and public official. Died April 19; born 1843.
- * Drum, Richard Coulton. American army officer.
- Drummond, Sara King, "Sara King Wiley." American writer. Died March 7; born 1872.
- * Drury, John Benjamin. American clergyman.
- Drysdale, Learmont. Scotch composer. Died July; born 1867.
- * Dubufe, Edouard Marie Guillaume. French artist.
- * Ducey, Thomas James. American Roman Catholic clergyman.
- * Dudley, William Wade. American soldier.
- * Duhamel, Joseph Thomas. Canadian Roman Catholic clergyman.
- Duna, John, English scientist. Died February; born 1820.
- Durand, Auguste. French musician and publisher. Died June; born 1830.
- * Durham, Israel W. American politician.
- * Dutcher, Silas Belden. American capitalist.
- Ebbinghaus, Hermann. German psychologist. Died March; born 1850.
- * Eddy, William Abner. American meteorologist.
- * Edwards, William Henry. American naturalist.
- Egger, Victor Émile. French philosopher and psychologist. Died March; born 1848.
- * Elgar, Francis. English naval architect.
- * Elliot, Samuel Richard. American physician and litterateur.
- Elsmie, George Robert. English Indian official. Died May 26.
- * Elwin, Edmund Henry. Anglican bishop.
- * Emerson, Ellen.
- Endemann, Hermann. Chemist and educator. Died October 8; born 1835.
- Engelmann, Wilhelm. German physiologist. Died May 20; born 1844.
- Ensign, Amos Merchant. American journalist. Died February 3; born 1851.
- * Erben, Henry. American rear-admiral.
- * Erhardt, Joel Benedict. American lawyer.
- Eshleman, Benjamin Franklin. American merchant and Civil War veteran. Died July 6; born 1829.
- * Estes, Dana. American publisher.
- * Evans, George Essex. Australian poet.
- Evans, Sebastian. English journalist, politician and litterateur. Died December; born 1830.
- * Fabbri-Muller, Inez. Austrian opera singer. Died August 31; born 1829.
- Fellows, Cornelius. American financier and sportsman. Died April 30; born 1840.
- * Fenn, George Manville. English author.
- * Ferrer y Guardia, Francisco. Spanish educator and anarchist.
- * Filgate, Charles Macartney. An English editor. Died December; born 1869.
- * Finley, Martha. American writer.
- * Fisher, George Park. American theologian and historian.
- * Fitch, Clyde William. American dramatist.
- * Fitzgibbon, Gerald. Irish jurist.
- Fitzgibbon, Henry. Irish jurist. Died November 26; born 1824.
- * Flagler, Isaac Van Vleck. American musician.
- Fleay, Frederick Gard. English Shakespearean scholar.
- Flint, Grover. American writer and war correspondent. Died January 31; born 1867.
- Florian, Walter. American artist. Died April 1.
- Flower, Anson Ranney. American financier. Died January 3; born 1844.
- * Fortis, Alessandro. Italian statesman.
- Fournier, Charles Antoine, "Jean Dolert." French writer on art. Died in October; born 1835.
- Fox, Reuben L. American capitalist and politician. Died September 7; born 1841.
- Fox, Wilson. English statesman and public official. Died January 21; born 1862.
- * Franklin, Samuel Rhoads. American rear-admiral.
- * Frith, William Powell. English artist.
- Fyler, Oreamus R. American soldier and public official. Died on November 22; born 1840.
- * Gallifet, Gaston Alexandre August, Marquis de. French military officer.
- Galloupe, Isaac Francis. American surgeon. Died May 17; born 1823.
- * Galloway, Charles Betts. American bishop.
- * Gamgee, Arthur. English physiologist.
- * Garrison, William Lloyd. American merchant and publicist.
- Gaskill, Francis Almon. American jurist. Died July 16; born 1846.
- Gates, Lorenzo. American botanist and conchologist. Died January 30.
- Gaus, Charles H. State Comptroller of New York. Died October 31; born 1840.
- Geijerstam, Gustaf af. Swedish author. Died March ; born 1858.
- George, Alonzo Webster. American lawyer and librarian. Died August 12; born 1829.
- Germon, Jane. American actress. Died August 10; born 1828.
- * Geronimo. Indian chief.
- Gilbert, James Eleazer. American clergyman and editor. Died March 26; born 1840.
- Gilbert, S. Arthur. American publisher. Died December 19; born 1837.
- * Gilder, Richard Watson. American poet.
- * Gillespie, George De Normandie. American (P. E.) bishop.
- * Gilman, Arthur. American educator.
- Golden, Richard. American actor. Died August 10; born 1854.
- * Goode, John. American lawyer.
- * Goodsell, Daniel Ayres. American bishop of the Methodist Episcopal Church.
- * Gordin, Jacob M., Hebrew playwright.
- * Gottschall, Rudolf von. German novelist.
- Graham, Joseph Marshall. American engineer and capitalist. Died February 3; born 1834.
- Grant, Gabriel. American surgeon and soldier. Died November 8; born 1826.
- Green, Elmer Ewing. American jurist. Died March 16; born 1850.
- * Green, James Gilchrist. American rear-admiral.
- * Greenwood, Frederick. English journalist.
- Gregory, Arthur William. American actor. Died April 6; born 1846.

- * Gregory, Edward John. English painter.
Griswold, John N. A. American capitalist.
Died September 13; born 1821.
- * Gross, Charles. American scholar and educator.
- * Grousset, Paschal. French journalist and communist.
- Growoll, Adolph. American editor. Died December 7; born 1854.
- * Gruyer, François. French chemist and writer on art.
- Günzberg, Horace, Baron de. Russian philanthropist. Died March 2; born 1833.
- Gwydyr, Robert Burrell, fourth Baron. Oldest British peer. Died April 3; born 1810.
- * Haines, Sir Frederick Paul. British field-marshal.
- * Hale, Edward Everett. American clergyman.
- * Hall, John Dennin. American architect and inventor.
- * Halle, Ernst von. German naval writer.
- * Hamilton, David James. Scotch pathologist.
- * Hankin, St. John Emile Clavering. English author.
- * Hansen, Émile Christian. Danish botanist.
- * Hare, William Hobart. American (P. E.) bishop.
- Harlan, George Cuvier. American ophthalmist. Died September 25; born 1835.
- * Harriman, Edward Henry. American financier.
- Harris, Thomas R. American Protestant Episcopal clergyman. Died January 24; born 1842.
- * Harris, William Allen. United States Senator.
- * Harris, William Torrey. American educator and public official.
- Hatch, Edward P. American merchant. Died September 20; born 1832.
- * Hausrath, Adolf. German Protestant theologian.
- Hawley, Walter. American political reporter. Died February 9; born 1860.
- * Hazeltine, Mayo Williamson. American literary critic.
- * Helper, Hinton Rowan. American writer and public official.
- * Henderson, Ettie (Lewis). American actress and playwright.
- Henderson, Isaac. American musical critic and playwright. Died April 1; born 1850.
- * Hendrick, Thomas Augustine. American Roman Catholic bishop.
- Herron, William Christie. American publicist and philanthropist. Died May 21; born 1843.
- Hesse, Anton. German sculptor. Died April 12; born, 1838.
- * Hey, Julius. German musician.
- Hilf, Arno. German violinist. Died August 4; born 1858.
- Hilkov, Prince Michael. Russian statesman. Died March '21.
- Hirsch, Max. Russian economist. Died March 4; born 1853.
- * Hitchcock, Ethan Allen. American public official.
- * Hoe, Robert. American press manufacturer and inventor.
- Hoerring, H. E. Danish statesman. Died February 14.
- * Hoffman, Richard. American pianist.
- * Hoffmann, Hans. German novelist and poet.
- * Hofmeyr, J. H. British Colonial official.
- Holbrook, Frederick. Governor of Vermont, 1861-3. Died April 28; born 1813.
- Holden, Henry. English clergyman and educator. Died April ; born 1814.
- * Holder, Sir Frederick William. Australian public official.
- Holdich, General Sir Edward Alan. British military officer. Died December 8; born 1822.
- * Holle, Ludwig von. German scholar and public official.
- * Holstein, Friedrich von. German diplomat.
- * Hornby, James John. English clergyman and educator.
- * Hough, George Washington. American astronomer.
- Hovey, Henry Emerson. American Protestant Episcopal clergyman. Died August 6; born 1844.
- * Howard, Oliver Otis. American military officer.
- * Howe, William Wirt. American jurist.
- * Howland, Alfred Cornelius. American artist.
- Hudleston, Wilfrid H. English geologist. Died January 30; born 1829.
- Hudson, Joseph Samuel. British rear-admiral. Died June 14; born 1835.
- * Hughes, David Charles. American Baptist clergyman.
- * Hughes, Robert Patterson. American army officer.
- Hughes, William Deveraux. American Roman Catholic clergyman. Died January 10; born 1857.
- Hume, John Ferguson. American abolitionist. Died July 10; born 1830.
- * Huntington William Reed. American Protestant Episcopal clergyman.
- * Huntley, Elias De Witt. American Methodist Episcopal clergyman.
- * Iglesias, Miguel. Peruvian soldier and statesman.
- * Imber, Naphtali Herz. Yiddish poet.
- Ince, John E. American comedian. Died January 18; born 1850.
- * Ito, Hirobumi, Prince. Japanese statesman.
- * Jackson, Sheldon. American clergyman.
- James, John William. American clergyman and writer. Died March ; born 1837.
- * Jannaris, Anthony. Cretan scholar.
- * Jewett, Sarah Orne. American author.
- * Jewett, Sophie. American educator.
- * Johnson, John Albert.
- * Johnson, Martin Nelson.
- * Johnson, Samuel William.
- * Johnson, William Allen. American Protestant Episcopal clergyman.
- * Jones, Sir Alfred Lewis. English ship owner.
- * Jones, John William. American clergyman.
- * Jones, Joseph Russell. American capitalist.
- * Jones, Leonard Augustus. American jurist.
- * Jones, William. American anthropologist.
- * Kamphausen, Adolf. German Protestant theologian.
- Karpoff, Col. Chief of Russian secret police. Assassinated December 22; born.
- * Kelle, Johann von. German philologist.
- * Kelly, Edmond. American lawyer.
- * Kennedy, John Stewart. American banker and philanthropist.

- * Kènnny, Patrick. (R. C. priest and educator.
- * Kidder, Benjamin Harrison. American naval officer.
- King, Moses. American publisher. Died June 12; born 1853.
- * King, William Frederick.
- Kleeberg, Clotilde. German pianiste. Died March 5; born 1866.
- Knight, Frederick Irving. American physician. Died February; born 1841.
- Kotze, Stefan von. German writer. Died April 12; born 1870.
- Kountz, John S. American soldier. Died June 14; born 1846.
- Krauss, William Christopher. American neurologist. Died September 21; born 1864.
- Kuntz, Charles M. American art director. Died March 21; born 1855.
- * Laffan, William M. American newspaper publisher.
- * Lamoreux, Silas Wright. American public official.
- Lancaster, Thomas. American climatologist. Died February 18; born 1833.
- * Lane, Elinor (Macartney). American novelist.
- * Lang, Benjamin Johnson. American musician.
- * Lang, John Marshall. English educator and clergyman.
- Lassalle, John. French opera singer. Died September 27; born 1847.
- Lassiter, Francis Rives. Member of Congress from Virginia. Died on October 31; born 1865.
- Lathrop, Francis. American artist. Died October 18; born 1848.
- * Laurie, Simon Somerville. Scotch educator and philosopher.
- Lawrence, Arthur. American Protestant Episcopal clergyman. Died September 20; born 1842.
- * Lea, Charles Henry. American historian.
- * Leach, Smith S. American army officer.
- * Leavitt, John McDowell. American educator and writer.
- * Leibling, Sally. German pianist.
- Leicester, Earl of. English nobleman. Died January 24; born 1822.
- * Lemly, Samuel Conrad. American naval officer.
- * Leopold II. King of the Belgians.
- Leprestre, Julien Françoise. French tenor. Died August 10; born 1864.
- * Leroy, James A. American public official and writer.
- Liddon, Benjamin S. American jurist. Died December 21; born 1852.
- * Lilieneron, Detlev, Baron von. German novelist and poet.
- * Lilley, George Leavens. American public official.
- * Lindsay, Thomas Bond. American scholar.
- * Lindsay, William. American statesman.
- * Lodge, George Cabot. American poet.
- * Loeb, Louis. American artist.
- * Logan, Olive. American writer.
- Lohmeyer, Karl. German scholar. Died June; born 1843.
- * Lombroso, Cesare. Italian criminologist.
- Loomis, Horatio. American chemist and educator. Died February 2; born 1856.
- Loop, Jeannette Shepherd. American portrait painter. Died April 17; born 1840.
- Loveridge, Irving. American electrician. Died June 4; born 1861.
- Low, Berthe Julienne (Mrs. W. H. Low). American writer and translator. Died April; born 1853.
- * MacArthur, James. American litterateur of Scotch birth.
- MacBride, Marian A. American clubwoman and journalist. Died September 18; born 1850.
- * McCarren, Patrick Henry. American politician.
- Macchi, Maria di. Italian prima donna. Died January 20; born 1867.
- * McCloskey, William George. American Roman Catholic bishop.
- * McClure, Alexander Kelly. American journalist and politician.
- * MacConnell, Charles Jenkins. American rear-admiral.
- * McCook, Edward Moody. American soldier and public official.
- * McKim, Charles Follen. American architect.
- * McLaurin, Anselm Joseph. American Senator.
- * McLouth, Lewis. American educator.
- * McQuaid, Bernard John. Roman Catholic bishop.
- McSweeney, Edward. American theologian. Died October 19; born 1842.
- * McSweeney, Miles Benjamin. American public official.
- Mahrenholtz, Richard. German historian. Died March; born 1849.
- Main, Herschel. American naval officer. Died March 18; born 1845.
- Manchester, Consuelo, Dowager Duchess of. Died November 20.
- March, Daniel. American clergyman and author. Died March 2; born 1816.
- Maretzek, Apollonie. Polish opera singer. Died January 16; born 1819.
- Markbreit, Leopold. Mayor of Cincinnati and editor of the *Volksblatt*. Died July 27; born 1842.
- * Marlborough, Lily. Duchess of.
- * Martens, Friedrich Frommhold von. Russian jurist.
- Martin, Benjamin Ellis. American travel and writer. Died August 15; born 1830.
- Martin, Celora E. American jurist. Died September 10; born 1834.
- * Martin, Sir Theodore. English parliamentary agent and author.
- Martucci, Giuseppe. Italian composer. Died July.
- * Marvin, Ross Gilmore. American meteorologist.
- * Mason, Andrew. American assayer.
- Mason, Emily Virginia. American writer and philanthropist. Died February 16; born 1815.
- * Mathews, William. American writer.
- Matkowsky, Adalbert. German actor. Died March; born 1859.
- * Matteucci, Vittorio Raffaele. Italian physiologist.
- Mau, August. German archaeologist. Died March 6; born 1840.
- Mauch, Joseph Bernhard. Arctic explorer. Died February 2; born 1849.
- * Maurer, Henry. American Mennonite missionary.
- Meehan, John. American military and engineer. Died July 24; born 1827.

- Meeker, Hiram L. American sea captain and philanthropist. Died November 12; born 1840.
- Mellor, Charles Chauncey. American musician and scientist. Died April 2; born 1836.
- Mendelssohn-Bartholdy, Ernest von. German banker. Died December 24; born 1846.
- * Mendés, Catulle. French novelist and playwright.
- * Meredith, George. English novelist and poet.
- Meredith, Joseph Carroll. American civil engineer. Died April 17; born 1856.
- * Merx, Adelbert. German theologian and Orientalist.
- Messel, Alfred. German architect. Died March; born 1853.
- * Metcalf, William. American metallurgist.
- * Michael Nikolaiévitch. Grand Duke of Russia.
- * Michel, François Emile. French artist.
- Midlane, Albert. American hymnologist. Died February 28; born 1825.
- Mierzwinski, Ladislas. Polish tenor. Died August.
- * Miller, Joseph Nelson. American rear-admiral.
- * Milligan, Robert Wiley. American rear-admiral.
- Millikin, James. American banker and philanthropist. Died March 2; born 1834.
- * Mills, Job Smith. American bishop.
- Minott, J. Otis. American miniaturist. Died May; born 1863.
- Mirat, Albert. Died February; born 1841.
- * Mitchell, Henry. American engraver.
- Mitchell, William Dunn. American clergyman. Died February 12; born 1869.
- * Modjeska, Helena. Polish-American actress.
- Moffitt, John R. American inventor. Died November 15; born 1825.
- * Mond, Ludwig. German chemist.
- * Monson, Sir Edmund John. British diplomatist.
- * Monstiers-Merinville, Mary Gwendolin (Caldwell), Marquise des. American philanthropist.
- * Moor, Sir Ralph Denham Rayment. English public official.
- Moore, James W. American physicist. Died February 28; born 1844.
- * Moran, John B. American lawyer and public official.
- * Morfill, William Richard. English scholar.
- * Morganstern, Lina (Bauer). German reformer.
- * Morris, Martin Ferdinand. American jurist.
- Morrison, Charles. English financier. Died May 26; born 1817.
- * Morrison, William Ralls. American lawyer and public official.
- * Moulton, James Egan. Australian educator.
- Mullen, John. American soldier and explorer. Died December 28; born 1830.
- Myers, Elijah E. American architect. Died March 6; born 1832.
- * Navarro, José Francesco de. Spanish engineer and financier.
- Naville, Jules Ernest. Swiss philanthropist and educator. Died May 27; born 1816.
- * Nehring, Wladislaw. German Slavic scholar.
- * Neumayer, Georg von. German meteorologist.
- * Newcomb, Simon. American astronomer.
- Nichols, Starr Henry. American traveler and writer. Died May 29; born 1834.
- Nimo, Joseph. American statistician. Died June 16; born 1831.
- * Noailles, Emmanuel, Marquis de. French diplomat.
- Noel, Edme Antony Paul. French sculptor. Died October; born 1845.
- Normand, Alfred Nicolas. French architect. Died March; born 1823.
- Norrie, Gordon. American merchant and philanthropist. Died November 9; born 1837.
- * Norton, Charles Ledyard. American author and editor.
- O'Brien, Denis. American jurist. Died May 18; born 1837.
- Olcott, Frederic P. American financier. Died April 15; born 1841.
- Olmstead, William Adams. Roman Catholic priest and soldier. Died March 8; born 1833.
- * Ordway, John Morse. American chemist and educator.
- * Osgood, Henry Brown. American military officer.
- * Osthoff, Herman. German comparative philologist.
- * Otis, Elwell Stephen. American military officer.
- * Packard, William Alfred. American scholar and educator.
- * Palmer, William Jackson. American railway official.
- * Pardow, William O'Brien. American Jesuit priest.
- Parker, Abraham. American scientist and educator. Died August 10; born 1831.
- * Parloa, Maria. American author and domestic economist.
- Parville, Henri François P. de. French scientist and editor. Died July 11; born 1839.
- Passage, Comte de. French artist. Died March; born 1839.
- * Patterson, Raymond Albert. American journalist.
- Pearson, Leonard. American veterinarian and educator. Died September 20; born 1868.
- Pease, Frederick H. American musician. Died November 22; born 1839.
- * Peckham, Rufus Wheeler. American jurist.
- * Penfield, William L. American lawyer.
- * Petrosino, Joseph. Italo-American detective.
- Phelan, Thomas. Irish-American patriot and soldier of fortune. Died September 13; born 1833.
- Philpot, Herman. Anglican missionary. Died October; born 1835.
- Phisterer, Frederick. American soldier. Died July 13; born 1836.
- Pierce, Elijah S. American inventor. Died January 13; born 1830.
- Pinard, Ernest. French politician. Died September ; born 1822.
- Pinner, Adolf. German chemist. Died June; born 1843.
- Pitcairn, Robert. American railway official. Died July 25; born 1836.
- * Poe, John Prentiss. American lawyer.
- * Poire, Emmanuel. French artist and caricaturist.
- * Pope, Albert Augustus. American manufacturer and capitalist.
- * Post, George Edward. American Presbyterian medical missionary.

Potter, William Appleton. American architect. Died February; born 1844.

Poynter, William A. Governor of Nebraska, 1899-1901. Died April 5; born 1848.

- * Prang, Louis. American art publisher.
- * Price, Thomas. American public official.
- * Prout, Ebenezer. English musician.
- * Pulliam, Henry Clay. American baseball official.

Putney, Henry M. American public official. Died July 30; born 1840.

Radin, Adolf Moses. Jewish rabbi. Died February 5; born 1848.

- * Raines, John. American politician.

Rand, William Wilberforce. American Dutch Reformed clergyman and author. Died March 3; born 1817.

Ranke, von, Heinrich. German biologist. Died May 12; born 1830.

Ranli, Frederic Salomon. French metaphysician. Died February 26; born 1861.

- * Raum, Green Berry. American soldier.

Reade, T. Millard. English geologist. Died May 27; born 1832.

Reamy, Thaddeus. American gynecologist. Died March 11; born 1829.

- * Red Cloud. Indian chief of the Sioux tribe.
- * Reid, Sir John Watt. English physician.
- * Remington, Frederic. American artist.
- * Reyer, Ernest. French composer.

Reynolds, John Phillips. American physicist and educator. Died October 10; born 1826.

Reynolds, Robert J. Former Governor of Delaware. Died June 10; born 1844.

Rhodes, Joshua. American financier. Died January 5; born 1824.

Rice, Lewis Frederick, Major. American architect and engineer. Died April 12; born 1840.

Richard, James William. American Lutheran theologian. Died March 7; born 1844.

- * Richards, John Kelvey. American jurist.
- * Richardson, Henry Brown. American engineer.
- * Rigg, James Harrison. English Wesleyan clergyman.

Riggs, James Willoughby. American financial writer. Died July 13; born 1828.

Ripon, George Frederick Samuel Robinson, Marquis of. English nobleman and public official.

- * Robertson, James Patrick. Bannerman. Scotch jurist and member of Parliament.
- * Rochester, William Beatty. American army officer.

Roemaet, Charles. Chancellor of Belgian Consulate in New York. Died August 1; born 1852.

- * Rogers, Henry Huttleston. American financier.

Römer, Albert. German author and editor.

Rothschild, Oscar, Baron. Jewish financier.

Rotter-Diffenbach, Johanna. Austrian-American opera singer. Died July 24; born 1833.

- * Rozhdestvensky, Ziniv Petrovitch. Russian admiral.

Salant, Samuel. Jewish rabbi. Died August 16; born 1816.

- * Salting, George. English art collector.
- * Sancha y Hervás, Cyriacus Mary. Cardinal. Archbishop of Toledo and Primate of Spain.
- * Sanderson, John H. American contractor.

Schell, Francis H. American artist. Died April 1; born 1830.

Schneider, Jerome. American educator. Died May 30; born 1824.

- * Schultz, Alwin. German art critic and historian.

Schytter, Ludwig. Danish composer. Died November; born 1850.

- * Scott, Guy Charles. American jurist.
- Scott, Ralph. American inventor. Died April 27; born 1883.
- * Seeley, Harry Govier. English geologist and mineralogist.
- * Selby, William Court Gully, Viscount. British public official.

Seligman, Henry. American banker. Died February 20; born 1829.

Selinger, Jean Paul. American artist. Died September 13; born 1850.

- * Senden-Bibran, Gustav E. O. E. von. German admiral.
- * Sepp, Johannes Nepomuk. German Catholic historian.
- * Sergiev, Ivan Ilytch. Russian priest.

Shackleford, James. American soldier. Died September 7; born 1827.

- * Shanley, John. American Roman Catholic prelate.

Sharp, Richard Boulder. English ornithologist. Died December 25; born 1847.

Simpson, Marcus D. L. American brigadier-general. Died April 7; born 1824.

- * Slafter, Carlos. American educator. Died July 19; born 1825.

Slingerland, Mark Vernon. American entomologist. Died November 10; born 1864.

- * Smillie, James David. American artist.
- * Smith, Charles Stewart. American banker and art connoisseur.
- * Smith, Clement Lawrence. American scholar and educator.

Smith, James Dickinson. American banker and yachtsman. Died September 21; born 1832.

- * Smith, W. Saumarez. Archbishop of Sydney and Primate of the Anglican Church in Australia.
- * Smith, William Thayer. American physician and educator.

Snell, Simeon. English ophthalmist. Died April; born 1852.

Solomon, Jacob. American lawyer and editor. Died May 26; born 1838.

- * Sonnenthal, Adolf Ritter von. Austrian actor.
- * Speed, John Gilmer. American editor and writer.
- * Starin, John Henry. American capitalist.

Stearns, Richard H. American merchant. Died August 16; born 1824.

- * Sterling, James Hutchinson. An English metaphysician.

Stern, Philipp. German author and editor. Died September; born 1844.

Stevenson, Sarah Hackett. American physician and philanthropist. Died August 14; born 1843.

- * Stewart, William Morris. United States Senator.
- * Stocker, Adolf. German theologian and politician.
- * Stoddard, Charles Warren. American author, poet and educator.
- * Stokes, Whitley. English scholar and scientist.

Story, Edwin Bruce. American musician and educator. Died July 27; born 1849.

* Strong, Edward Trask. American rear-admiral.
 * Sturgis, Russell. American architect and writer.
 * Suleiman, Effendi. Turkish prince.
 Sullivan, Timothy P. American politician. Died December 22; born 1865.
 Sweatman, Arthur. Canadian archbishop; Primate of all Canada. Died January 24; born 1834.
 * Swinburne, Algernon Charles. English poet.
 * Synge, John Millington. Irish dramatist and poet.
 * Tabb, John Bannister. American educator and poet.
 * Talcott, Alfred Bissell. American journalist and lecturer.
 Taylor, Charles Bell. English ophthalmist. Died April; born 1829.
 Taylor, Isaac. American engineer. Died April 20; born 1835.
 * Thacher, John Boyd. American publicist and educator.
 * Theodor Karl, Duke in Bavaria. German prince and eye specialist.
 Thierry, Stephen. Founder of the Roman Catholic Holy Name Society. Died June 12; born 1832.
 * Thomas, George C. American capitalist.
 Thomas, Hiram Washington. American clergyman. Died August; born 1832.
 Thome, François. French composer. Died November 11; born 1850.
 Thompson, Phil. American lawyer, former Representative to Congress from Kentucky. Died December 14; born 1844.
 Thompson, Samuel G. American jurist. Died September 10; born 1837.
 * Thomsen, Julius. Danish chemist.
 * Thomson, William Judah. American rear-admiral.
 Thorpe, David Franklin. American scientist and philanthropist. Died March 25; born 1836.
 * Tilford, Wesley Hunt. American capitalist.
 Tillinghast, Caleb Benjamin. American librarian and public official. Died April 18; born 1843.
 * Timby, Theodore Ruggles. American inventor.
 * Toth, Alexis G. Ecclesiastic of the Orthodox Greek Church.
 Tourgée, Aimée. American writer and illustrator. Died April 19; born 1871.
 * Trask, Spencer. American banker and philanthropist.
 * Tufts, Frank Leo. American scientist.
 * Turpie, David. United States Senator.
 * Tweedmouth, Edward Marjoribanks, Baron. English cabinet officer.
 * Tyrrell, George. Roman Catholic priest.
 * Tyssen-Amherst, William Amherst. English nobleman and bibliophile.
 Vailati, Giovanni. Italian mathematician and philosopher. Died May 14; born 1863.
 Van Arsdale, Robert N. American editor. Died November 23; born 1848.
 Vandyke, John Henry. American lawyer and insurance official. Died March 9; born 1824.
 * Vaughan, Lawrence J. Roman Catholic clergyman.
 Vidaver, Falk. Jewish rabbi. Died October 5; born 1845.
 * Vladimir. Grand Duke of Russia.
 Voules, Horace St. George. English editor. Died May 4; born 1844.

Wagner, Albrecht. German educator and critic. Died March; born 1850.
 Waite, Charles Burlingame. American linguist and public official. Died March 26; born 1824.
 Waite, Henry Randall. American clergyman. Died May 6; born 1837.
 * Ward, Seth. American bishop.
 * Warner, Charles. English actor.
 Warren, Samuel Edward. American scientist. Died July 8; born 1831.
 * Watson, Henry Chapman. American author.
 Weeks, Stephen Holmes. American physician. Died September 1; born 1835.
 * Weil, Henri. German-French scholar.
 Wells, Calvin. American iron manufacturer and newspaper publisher. Died August 2; born 1827.
 * Werner, Reinhold von. German rear-admiral.
 West, Caleb Walton. Former Governor of Utah. Died January 24; born 1844.
 * West, Max. American economist.
 * Wharton, Joseph. American ironmaster and philanthropist.
 * Whiteaves, Joseph Frederick. American palaeontologist.
 * Whitehouse, William Fitzhugh. American traveler and explorer.
 * Wiggins, Benjamin Lawton. American educator.
 * Wildenbruch, Ernst von. German dramatic poet.
 Will, Sir Frederick. English financier. Died February 18; born 1839.
 * Wilson, Arthur. English shipping merchant.
 * Wilson, Augusta Jane (Evans). American author.
 Wilson, Thomas Padon. American homeopathist. Died June 23; born 1831.
 Wingate, Charles Frederic. American engineer and writer. Died August 31; born 1847.
 * Withrow, John Lindsay. American clergyman.
 Wolfsohn, Henry. American musician and impresario. Died May 31; born 1841.
 Womack, Robert. Discoverer of Cripple Creek, Colo. Died August 10; born 1843.
 * Woodward, David A. American educator.
 * Worthington, Henry C. American soldier and public official.
 * Wright, Carroll Davidson. American economist and educator.
 * Wright, Charles Henry Hamilton. English scholar.
 * Wyllie, Sir William Hutt Curzon. English East Indian official.
 * Wyse, Lucien Napoleon Bonaparte. French engineer.
 Yates, Arthur Gould. American capitalist. Died February 6; born 1843.
 * Yi Wan Yon. Prime Minister of Korea.
 * Zalinski, Edmund Louis Gray. American military officer.
 * Zerrahn, Carl. A German musician.

NEGATIVE CATALYSIS. See CHEMISTRY.

NEHRING, WLADISLAW. A German Slavic scholar, died February, 1909. He was born at Kletzko in 1830, and was educated at the University of Breslau, where in 1868 he was appointed professor of Slavic languages and literature. Among his published works are: *Kurs literatury polskiej* (1866); *Study a literacki*

(1884); and *Altpolnische Sprachdenkmale* (1887).

NEON. See **CHEMISTRY.**

NETHERLANDS, THE; or **HOLLAND.** A constitutional monarchy of western Europe. Capital, The Hague.

AREA AND POPULATION. Area, 12,648 square miles. Population (census of 1899), 5,104,137; estimated, December 31, 1908, 5,825,198. The number of marriages in 1908 was 41,951; births (inclusive of still-born), 178,882; deaths (with still-born), 93,955; still-born, 7019; showing an increase of births over deaths of 84,927, against 88,156 for the preceding year. Emigration is given at 3030, against 4393 in 1907. The population of Amsterdam and Rotterdam (the chief commercial cities) was given, December 31, 1908, at 565,589 and 411,635 respectively; The Hague, 259,012; Utrecht, 116,783; Groningen, 75,370; Haarlem, 70,348; Arnhem, 63,987; Leide, 57,919; Nimeguen, 54,735; Tilburg, 49,319; Dordrecht, 45,723.

EDUCATION, ETC. Primary education is compulsory, and free in public schools, maintained jointly by the state and the communes. The state encourages primary instruction in state-aided private rather than in public schools. The number of both public and private elementary schools (exclusive of infant) is given in the government returns for 1906-7 as 5043, with 27,281 teachers and 866,750 pupils; middle class schools, 90 (teachers 1405, pupils 13,462); navigation schools, 11 (82 and 1062); schools for working people, 291 (2401 and 33,632); classical schools, 30 (447 and 2082); one technical university (66 and 1174); and 4 public universities, with 297 teachers and 3465 students. There are special schools of agriculture, horticulture, fine arts, music, etc.

Entire liberty and social equality are extended to all religions. The census of 1899 divides the population according to religions as follows: Dutch Reformed, 2,471,021; other Protestant, 598,111; Roman Catholics, 1,790,161; Jansenists, 8754; Jews, 103,988; others, 132,102.

AGRICULTURE. The cultivable area was divided in 1907 into arable land, 861,672 hectares; pasture, 1,201,037; gardens and orchards, 73,345; forest, 257,611. The areas in hectares under the principal crops in 1907, and the average yield per hectare in hectolitres for 1906 and 1907, are given in the following table:

Crop	Hectares 1907	Yield 1906	Yield 1907
Rye	220,392	22.5	23.1
Oats	139,290	47.7	52.9
Wheat	54,411	30.7	34.5
Winter barley	23,379	41.8	49.1
Summer barley	7,563	35.7	38.8
Potatoes	158,223	209.0	210.0
Beetroot	44,144	32,135.0 kilos	29,586.0 kilos
Forage plants	32,970	....	....
Peas	30,560	30.3	23.0
Beans	29,301	29.7	28.0
Buckwheat	18,272	18.4	17.8

Quantities of bulbs, shrubs, trees, and vegetables are grown for export.

MANUFACTURES, ETC. The principal manufactures are shipping, bricks, margarine, cocoa and chocolate, linen, damask, cotton and woolsens, cigars, candles, confectionery, earthen ware and pottery, chemical and pharmaceutical products,

sugar, vehicles, oils, and liquors. Diamond cutting is an important industry with Amsterdam for centre. There were in 1907 551 distilleries, 453 breweries, 82 vinegar manufactories, 37 salt works, 11 sugar and 28 beet-sugar refineries. No official figures are given for other manufacturing industries.

The state owns most of the coal mines; output (1907), 722,822 metric tons, valued at 4,919,000 guilders (1 guilder=40.2 cents).

The fisheries employed, in 1907, 5454 vessels and 20,692 men. The value of the North Sea herring catch was 10,394,336 guilders; 2,463,677 kilos of oysters were taken.

COMMERCE. The total imports and exports in 1908 were valued at \$2,823,700,000 and 2,181,000,000 guilders respectively, against 2,671,700,000 and 2,212,100,000 in 1907. The main classes and their value in guilders for 1908 are given below:

	Imports	Exports
Raw materials	1,097,800,000	748,200,000
Foodstuffs	657,300,000	649,800,000
Manufactured articles	514,300,000	424,100,000
Various	539,400,000	312,900,000
Total merchandise	2,808,800,000	2,171,000,000
Precious metals	14,900,000	10,000,000
Total	2,823,700,000	2,181,000,000

The principal articles of import in 1907 were: Cereals and flour, 495,043,000 guilders; iron and steel, 294,355,000; textiles, 161,120,000; copper, 149,970,000; coal, 91,457,000; wood, 84,144,000; rice, 75,900,000; coffee, 51,867,000. Exports: Cereals and flour, 297,802,000; iron and steel, 189,194,000; copper, 129,808,000; wood, 64,807,000; paper, 62,610,000; sugar, 53,355,000; margarine, 45,640,000; skins, 31,773,000. The principal countries of origin and destination and the value in guilders of the special trade in 1908 are given below:

Countries	Imports	Exports
Germany	694,600,000	1,082,100,000
Dutch East Indies	405,300,000	89,100,000
United States	322,200,000	81,100,000
Great Britain	294,400,000	476,300,000
Russia	280,100,000	13,100,000
Belgium	270,800,000	280,500,000
British India	73,600,000	1,500,000

The country is practically free-trade, the few duties levied being for fiscal and not for protectionist purposes. Records are kept of the transit trade only by weight and not by value. The weight in kilos of the transit trade for 1907 was 9,505,000,000.

COMMUNICATIONS. There were, January 1, 1908, 1934 miles of railway; length of canals, 1907 miles; of roads, 2943; of state telegraph lines, 4405 (wires, 21,360); of telephone lines, 1745 (wires, 26,509). The railways are privately owned, and carried (1907) 40,972,000 passengers; goods, 15,208,000 metric tons. Revenue and expenditure, 54,106,000 and 47,936,000 guilders respectively. There were 1445 post-offices. The merchant marine had, January 1, 1908, 435 sailing vessels, of 49,560 tons; 292 steamers, of 398,604 tons. In 1907, 14,404 vessels, of 13,819,806 tons (Dutch, 3957, of 3,544,956 tons) entered, and 14,500, of 13,842,462 tons (Dutch, 4058, of 3,562,656 tons), cleared.

FINANCE. The unit of value is the guilder, or florin, worth 40.2 cents. The revenue and expenditure for three successive years were as follows:

	1907	1908	1909
		(estimated)	(estimated)
Revenue.....	183,085,026	183,077,171	184,728,351
Expenditure..	182,913,729	194,768,959	200,576,140

The budget for 1910 gives revenue 188,320,473 guilders, and expenditure of 207,187,207 guilders. The principal sources of revenue and items of expenditure were given as follows:

Revenue	Guilders
Excise	57,490,000
Direct taxes	44,345,000
Stamps, etc.	27,551,000
Posts and telegraphs	18,589,000
Import duties	12,622,500
Railways	4,188,140
Pilot dues	2,800,000
Domains	1,629,000
Lottery	654,000
Various	18,457,833
Total	188,326,473

Expenditure	Guilders
Public debt	36,334,256
Interior	35,086,283
Internal administration	32,763,776
Finance, etc.	26,911,004
War	28,637,096
Marine	20,136,907
Justice	9,771,701
Agriculture, etc.	8,104,829
Railways	3,548,615
Colonies	3,051,345
Foreign affairs	1,225,092
Legislative body and Royal Cabinet...	756,222
Civil list	800,000
Total	207,187,207

The expenditure of the Colonial Department is for central administration only. A separate budget is voted each year by the States-General for the principal colonies. The public debt stood (1910) as follows: Funded debt, 1,122,433,750 guilders; interest, 30,698,147; floating debt, 500,000; annuities, 168,109; sinking fund, 4,958,000. The condition of the Bank of the Netherlands, the only bank of issue, was (March 31, 1908) as follows: Notes in circulation, 265,947,760 guilders; total exchanges, 658,854,720; stock of gold (July), 92,500,000; stock of silver (July 1), 50,500,000; capital, 20,000,000; reserve fund, 5,500,000. The postal savings bank had total deposits at the end of 1907, 145,496,000 guilders. Other savings banks, numbering 242 (1906), had 93,171,000 guilders of deposits.

NAVY. The effective navy, as reported in 1909, is as follows: 16 armored or protected battleships and cruisers, aggregating 70,031 tons; 3 armored monitors, 6713 tons; 3 river gunboats, 1144 tons; 11 gunboats, 2960 tons; 38 torpedo boats (one submarine), 3938 tons; total, 84,786 tons. In addition there were several school-ships, etc. The personnel consisted of 6697 officers and men. An armored battleship was under construction in 1909.

ARMY. The active army of Holland, which is really a militia organization for home defense,

is recruited by voluntary enlistment and conscription. On a permanent peace footing the strength of the active army in 1909 was stated at 1836 officers, 509 officers of the reserve and of the militia, 32,826 non-commissioned officers and men, and 5605 horses. In the reserve, officers and non-commissioned officers and men to the number of 392 and 5896 respectively were maintained for the cadres or skeleton organizations to be expanded in time of war. The army is organized in four divisions, with headquarters at The Hague, Arnhem, Breda and Amersfoort. Provision is made for a war organization which would produce a strength estimated at 108,000. The Netherlands contingent for 1910 was fixed at 17,500, the maximum number authorized by law. Of this number 400 were drafted into the navy, 11,900 were called out for a complete period of 8½ months for dismounted, or 18 months for mounted troops, and 5200 for a reduced period of 4 months. The number of youths on the rolls amounted to 52,387, out of a population of about 5,700,000. There were 12 regiments of infantry, 4 regiments of hussars, 4 regiments of field artillery, 1 division of horse artillery, 4 regiments of fortress artillery, besides engineers and other technical troops. In addition there were the cadres in the reserve for 48 battalions of infantry from the "land-weer," 44 companies of fortress artillery, and a full force of technical troops. On July 1, the cavalry was reorganized and four regiments of 4 squadrons were formed from the four regiments, where previously there were two of five squadrons, one of four, and one of two squadrons. On April 1, two cyclist companies were formed and attached respectively to the 3d and 4th infantry divisions, and two more were to be formed in 1910. The artillery was organized with six field batteries in a division.

GOVERNMENT. The executive authority is vested exclusively in the sovereign, acting through a responsible Ministry; the legislative power devolves upon the States-General, divided into the Upper or First Chamber of 50 members, and the Second Chamber of 100 deputies, directly elected. The sovereign (1909), Queen Wilhelmina Helena Paulina Maria, was born August 31, 1880. She succeeded her father November 23, 1890, was enthroned September 6, 1898, and married, February 7, 1901, Prince Henry of Mecklenburg-Schwerin. Heiress-apparent, Princess Juliana Louisa Emma Maria Wilhelmina, born April 30, 1909. The Ministry in 1909 (constituted February 12, 1908) was composed as follows: Minister of the Interior, Dr. Th. Heemskerk; Foreign Affairs, Jhr. Dr. R. de Marees von Swinderen; Finance, Dr. M. J. C. M. Kolkman; Justice, Dr. A. P. L. Nelissen; War, Major-General W. Cool; Marine, Vice-Admiral J. Wentholt; Waterways, Dr. L. H. W. Regont; Agriculture, Industry and Commerce, A. S. Talma; Colonies, J. H. de Waal Malefijt.

HISTORY. The Dutch Social Democratic party at its congress at Deventer early in the year decided to expel the editor of a Socialist paper, the *Tribune*, as part of its policy of ridding itself of the Marxist element, which was critical and obstructive and prevented the party from presenting a solid opposition to the Clericals and Liberals. The second ballot of the general elections on June 23 returned 60 members of the Right (Clerical coalition), and 40 of the Left. In some quarters the results of the elections

were regarded as marking the downfall of Dutch Liberalism. Dr. Kuyper, the founder of the anti-Revolutionary party, was especially active in the campaign, publishing many aggressive papers against the so-called revolutionary programme, and insisting that all other issues should be subordinated to its overthrow. He classified political parties into the two groups of "Christians" and "Heathen," the former comprising the solid Conservative opposition. The 60 members of the Right included 25 Catholics, 23 Anti-Revolutionaries, and 12 Historic Christians; the Left included 25 Liberals, 8 Democrats and 7 Socialists. A bill for a ten-hour day (60 hours a week) passed the Lower House in March. On March 19 the Regency bills were brought in. Queen Emma was to be Regent, and if she died the Regency was to fall to the Prince Consort during the heir's minority. The birth of the heir, a daughter, on April 30, was hailed with great national rejoicing.

According to the protocol signed with Venezuela in the spring, Venezuela was to pay an indemnity of 20,000 bolivars for the seizure of five merchant vessels in 1908, and the Dutch government was to restore the coastguards seized in December of that year. In June some trouble occurred on account of a misunderstanding with the Venezuelan representative at The Hague, Dr. Paul, who was alleged to have said that the protocol need be signed only by the President, whereas it required ratification by the Venezuelan Congress. Dr. Paul was dismissed. Venezuela demurred to the provision that any concession to British Trinidad should apply of its own force to the Dutch Antilles. The new Parliament opened on September 21. The budget showed a considerable deficit for the coming year, to meet which it demanded the retention of the present additions to the property tax, income tax, and tax on trading profits, increase of the tax on native alcohol, and of the duty on imported alcohol, and increase of customs duties. In addition to these extraordinary measures it proposed as permanent measures an increase of the death duties, the revision of the customs tariff, and a general income tax. In October a ship's pinnace was destroyed by an explosion, on the coast between Waterweg and Scheveningen, and six men and a first lieutenant were killed.

NEUMAYER, GEORG VON. A German meteorologist and hydrographer, died in May, 1909. He was born at Kirchheimbolanden, Bavaria, in 1826, and was educated at the Polytechnic and the University of Munich. In 1857 he was sent by Maximilian II. to Australia to make magnetic observations. There he remained until 1864. He founded the Flagstaff Observatory in Melbourne. On his return to Germany he became interested in polar exploration, and assisted in forming several expeditions to the North and South poles. He founded, also, the German African Company. After a long connection with the hydrographic bureau in Berlin he became, in 1876, director of the Imperial Marine Observatory at Hamburg, and continued in this position until 1903. His writings include, among other works, *Results of the Observations at the Flagstaff Observatory* (1858-63); *Die deutsche Expedition und ihre Ergebnisse* (1890-91), and *Auf zum Sudpol!*

NEVADA. One of the Western Division of the United States. Its area is 110,590 square

miles. The population in 1909, according to a Federal estimate made in that year, was 42,335.

MINERAL PRODUCTION. The value of the mineral production of Nevada in 1908 showed a slight decrease from the value of the product of 1907. In the former year it was \$19,043,820, and in the latter, \$22,088,700. The chief decline was shown in the production of gold, of which there were produced in 1908, 565,475 fine ounces, valued at \$11,689,400, as compared with 745,507 fine ounces, valued at \$15,411,000, in 1907. The silver production showed also a decrease in value, but an increase in the quantity mined. The comparative figures were as follows: 1908, 9,508,500 fine ounces, valued at \$5,086,100; 1907, 8,280,500 fine ounces, valued at \$5,465,100. The only other mineral product produced in considerable quantities was lead, of which the product in 1908 was valued at \$318,864, as compared with a value of the product of 1907 of \$358,280. The falling off in the production of gold was caused by the decreased production in the fields in Esmeralda and Nye counties, which include Goldfield and Tonopah. Several new fields have been discovered during the year, but they have thus far proved of no great importance. Other minerals produced in some quantities are precious stones, salt and zinc.

The gold production in 1909 was estimated by the Director of the Mint at 721,195 fine ounces, valued at \$15,908,400. The silver production was 8,953,000 fine ounces, valued at \$4,657,000. This was a decrease of 555,500 fine ounces from the production of 1908.

The copper output of 1909 showed a considerable increase over that of 1908.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Spring wheat, 1,033,000 bushels, valued at \$1,074,000, from 36,000 acres; oats, 280,000 bushels, valued at \$1,165,000, from 75,000 acres; barley, 304,000 bushels, valued at \$228,000, from 8000 acres; potatoes, 540,000 bushels, valued at \$459,000, from 3000 acres; hay, 194,000 tons, valued at \$5,187,000, from 210,000 acres. The yield of spring wheat in Nevada is the largest in any of the States with the exception of Colorado and Montana. Many important irrigation projects are being carried on which will in time greatly increase the agricultural development of the State. (See **IRRIGATION**.) Large numbers of sheep are raised. They numbered in 1909, 1,585,000. The wool clipped in the State in 1909 was estimated at 8,754,720 pounds.

EDUCATION. A school census was taken in April, 1908, in which there were reported 12,025 children of school age, 6 to 14 years. The total enrollment was 10,440, and the average daily attendance was 7312. In the year ended August 31, 1908, there were employed 449 teachers. There was spent for school purposes during the summer period \$601,993. The average salary of male teachers was a little over \$112.57 for a month of twenty days, and for female teachers, a little less than \$60.96. The average length of the school year was 8.1 months. The State Legislature of 1907 passed a school law abolishing the office of county superintendent, and divided the State into five educational districts, each having a deputy State superintendent to supervise the schools.

POLITICS AND GOVERNMENT. The chief political interest of the year centred in the attempt to pass legislative measures against the Japanese in the State. A remarkable resolution was introduced by Speaker Giffen, which attacked the President's attitude on the question of immigration, and recommended the legislature of California to pay no attention whatever to the domination of the President in this respect. This resolution asserted also that "We must have war with the Japanese Empire sooner or later, and now is the best time to lay down terms to that Empire." The paragraphs assailing President Roosevelt were eliminated, and after the resolution had been further modified it was passed by the Assembly in a form comparatively harmless, beyond having a tendency to inflame jingo sentiment in the United States and Japan. On February 5, the Assembly passed an anti-alien bill providing that no Asiatics should own land or land mortgages in the State. These measures were laid on the table by the Senate, and no further action was taken on them. On February 24, however, the Senate passed a bill which had previously been adopted by the Assembly, providing that all aliens and foreigners shall be excluded from Federal and State grazing lands. The legislature passed a stringent anti-gambling bill, which is to go into effect on October 1, 1910. This measure not only prevents race-track pool selling, but will put an end to all forms of public gambling, as poker, faro, roulette, etc. On January 26, United States Senator Francis G. Newlands, who had been chosen by a popular vote to succeed himself, was reelected by both houses of the legislature voting separately. On January 4 the Esmeralda county grand jury returned indictments against the officials of the Pittsburg Silver Peak and the Florence Gold Mines, on the charge of conspiring to defraud the State of its bullion tax. These indictments were later dismissed by the State, upon the agreement of the company to pay the amount of tax and costs.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: A measure was enacted prescribing eight hours as a day's work in mines and in plaster and cement work. It was made unlawful for employers to receive or demand any consideration for hiring or retaining employees. A parole system of prisoners was adopted, and provision is made for the care of dependent, neglected and delinquent children. Measures were passed in the endeavor to suppress "wild-cat" mining promotion. A new and elaborate banking law was enacted. Provision is made for nomination by primaries instead of by conventions, and faro and other forms of gambling are prohibited after October 1, 1910.

OFFICERS: Governor, vacancy; Lieutenant-Governor and Acting Governor, D. S. Dickerson; Secretary of State, W. G. Douglass; Treasurer, D. J. Ryan; Auditor, W. Ligon; Comptroller, Jacob Eggers; Superintendent of Public Instruction, Orvis Ring; Attorney-General, R. C. Stoddard—all Democrats except Eggers, Ring, and Douglass, Republicans.

JUDICIARY. Supreme Court: Chief Justice, Frank H. Norcross, Republican; Justices, George F. Talbot, Democrat, James Sweeney, Democrat; Clerk, W. G. Douglass, Republican.

The State Legislature of 1909 was composed of 12 Democrats and 7 Republicans in the

Senate, and 34 Democrats and 14 Republicans in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

NEW BRUNSWICK. A maritime province of Canada. Area, 27,985 square miles. Population (1901), 331,120. Capital, Fredericton (7117); largest town, St. John (40,711). The executive authority rests in a lieutenant-governor, appointed by the Governor-General of Canada and acting through a responsible Executive Council. There is a unicameral Legislative Assembly of 46 members elected by popular vote for four years. The Lieutenant-Governor in 1909 was Lemuel John Tweedie; the Premier and Attorney-General, J. Douglas Hazen. For statistics and other details, see CANADA.

NEW CALEDONIA. An island in Melanesia, which with its dependencies constitutes a French penal colony. No convicts have been sent there since 1898. The dependencies are the Isle of Pines, the Wallis Archipelago, the Loyalty Islands, the Huon Islands, and Futima and Alafi. Total area, 7200 square miles; total population (1906), 55,886. In 1907, the population was estimated by principal divisions as follows: 13,000 free white persons; 11,000 of convict origin; 29,000 blacks; the remainder is made up of French, Javanese, Tongkinese, Indians, etc. Capital, Nouméa, with (1901) 6968 inhabitants, of whom 4010 were free. In 1906 there were 40 primary schools, with 1974 pupils, and a college at Nouméa. The area is divided into the State domain, the penal settlement, and the native reserve. About 1600 square miles are cultivated, 1600 are pasture land, and 500 forest. The chief products are coffee, corn, tobacco, sugar, manioc, and fruits. There are about 45,000 cattle and 2000 sheep. About 516,140 hectares are under mineral exploitation. In 1907 the output of the mines was as follows: Nickel ore, 111,075 metric tons; cobalt ore, 4470; chrome ore, 28,280; copper ore, 432. The total imports in 1907 (mainly farinaceous foods and beverages) were valued at 9,410,485 francs (France, 4,927,000); exports (chiefly minerals), 8,504,164 francs (France 2,625,301). A railway under construction from Nouméa to Bourail (90 miles) was open to traffic (1908) to Dumbéa (about 10 miles). There were 39 post-offices in 1907. Length of telegraph (1907), 633 miles. A steamer from New South Wales touches at Nouméa monthly. Harbor improvements are under way. The budget for 1907 balanced at 3,974,000 francs; the debt stood at 7,560,000. The expenditure of France on the colony (budget of 1909) amounted to 3,318,624 francs, of which 1,582,100 was for the penal settlement. The military force numbered (1909) 436 Europeans. The colony is administered by a governor, assisted by a privy council and an elective council-general.

NEWCOMB, SIMON. An American astronomer, died July 11, 1909. He was born at Wallace, N. S., in 1835. His father, John Newcomb, a teacher, undertook the boy's early education. The older Newcomb came to the United States in 1852, and the younger, who taught for several years in Canada in his early manhood, followed in 1853. He taught for two years in Maryland, and made the acquaintance of Joseph Henry, Secretary of the Smithsonian Institution, and of Julius E. Hilgard, Superintendent of the United States Coast and Geodetic Survey.

These scientists were so impressed by young Newcomb's ability in mathematics that they secured his appointment as a computer on the *United States Nautical Almanac*, then published at Cambridge, Mass. The educational opportunities afforded at Cambridge were eagerly seized by Newcomb, and he graduated from the Lawrence Scientific School in 1858, remaining for three additional years for graduate study. During his stay in Cambridge, he undertook some of the most advanced astronomical work attempted up to that time. This included a computation of the orbits of the asteroids, and his report, delivered before a meeting of American scientists, won for him immediate recognition. Still greater scientific fame came from the publication, in 1860, of a general mathematical theory on the same subject.

In 1861 Newcomb was appointed professor of mathematics at the United States Naval Academy. He was assigned to special duty at the Naval Observatory in Washington. In 1870 he was sent to take observations of an eclipse of the sun, visible from the Mediterranean. A station was established at Gibraltar, and although clouds obscured the sun at its eclipse, Professor Newcomb utilized the opportunity by making observations on the minor movements of the moon, and these studies were carried on in many European observatories. This problem, over which many great astronomers had worked in vain, Professor Newcomb finally solved, and he developed formulæ for the construction of accurate lunar tables. The chief work on which he was engaged at this period was the accurate determination of the elements of the solar system, including measurements relating to the major planets, the larger asteroids, and the planetary satellites. In 1867 was published his final memoir on the secular variations of the orbits of the asteroids, and in 1874 this was followed by a report on his investigations on the orbit of the planet Uranus. His final publications on the motions of the moon appeared in 1876.

In 1877 Professor Newcomb was made senior professor of mathematics at the Naval Academy. From this time until 1897 he was director in the office of the *American Ephemeris and Nautical Almanac*. He was retired in the latter year. From 1884 to 1894 he was also professor of mathematics and astronomy at Johns Hopkins University. After his retirement Professor Newcomb continued the production of astronomical treatises, as well as works of other sorts, including belles-lettres. In 1905 he began, for the Carnegie Institution, an extensive work on mathematical astronomy. He wrote also many popular works on astronomy. These from their lucid and simple style are eminently readable. He was a contributor to encyclopedias on astronomical subjects.

A list of the honorary degrees which Professor Newcomb received would form a list of nearly all the great institutions of learning and learned societies in the world. He was made an associate of the Institute of France in 1893, an honor which he shared alone with Benjamin Franklin among Americans, and which has belonged to but eight persons outside France. He was, at various times, president of the Society for Psychical Research, of the American Association for the Advancement of Science, of the American Mathematical Society and of the Astronomical

and Astrophysical Society of America. He was a member of every scientific, astronomical, and mathematical society of first rank in the world. Professor Newcomb was recognized both at home and abroad as the most eminent scientist of America. It was asserted by Professor Pickering, of Harvard, that Professor Newcomb was recognized as the greatest astronomer of his time. A ballot taken by the Carnegie Institution several years ago placed him at the head of American scientists. His published books comprise over 300 titles, and include a novel of considerable merit. Among them are the following: *Secular Variations and Mutual Relations of the Orbits of the Asteroids* (1860); *Investigations of the Orbit of Neptune* (1874); *Researches on the Motion of the Moon* (1876); *Popular Astronomy* (1878); *Calculus* (1884); *A Plain Man's Talk on the Labor Question* (1886); *Principles of Political Economy* (1887); *Elements of Astronomy* (1900); *His Wisdom the Defender* (novel, 1900); *The Stars* (1901); *Reminiscences of an Astronomer* (1903); *Spherical Astronomy* (1906); *Sidelights on Astronomy* (1906). His tables of the movements of the planets, stars and moon form the basis of computations by which the vessels of the world are navigated.

NEWFOUNDLAND. An island off the northeast coast of North America; the oldest of the British colonies. Capital, St. John's.

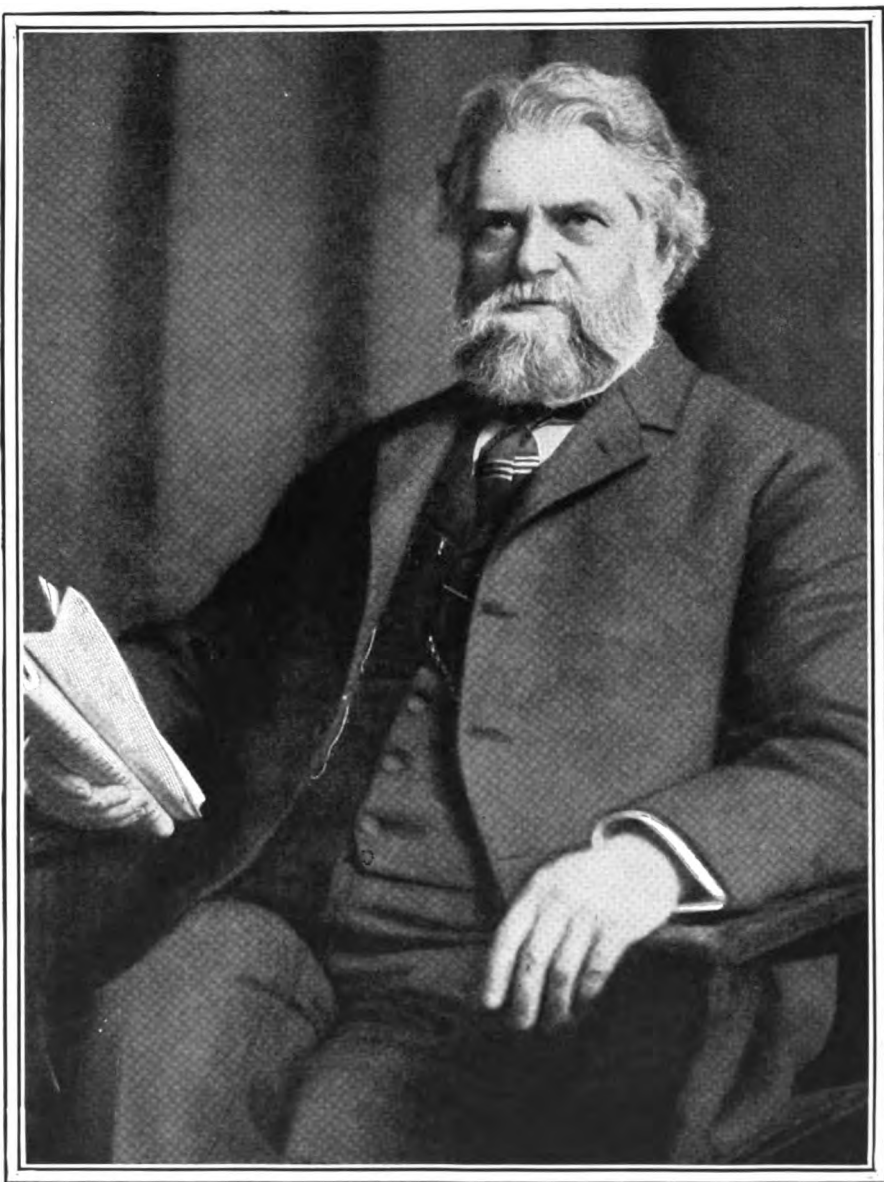
AREA, POPULATION, ETC. Area, 42,734 square miles. Population (1901), 217,037 (Roman Catholics, 75,989; Anglicans, 73,008; Methodists, 61,388; Presbyterians, 1497; others and unknown, 9099); estimated, at end of 1907, 230,139. Labrador, a dependency, has 119,000 square miles and (1901) 3634 inhabitants (estimate, 1907, 4024). St. John's had (1901) 31,501 inhabitants; Harbour Grace, 5184. There were (1907) 918 denominational schools, with 43,811 pupils.

INDUSTRIES. Fishing is the principal occupation of the people (62,674 in 1901), and the annual catch is valued at nearly ten million dollars (1907, \$9,942,688). Agriculture occupies an increasing number (2475 in 1901). Cultivated area (1901), 85,533 acres, producing root crops, hay, barley, and oats. There were 32,767 cattle, 8851 horses, 78,052 sheep and 34,679 swine. Saw mills have been set in operation in the northern forests, and large pulp and paper mills are being established. Extensive deposits of iron, silver and lead ore, copper, and pyrites exist, and mines are in operation. Coal is found, and, in the eastern part of the island, gold-bearing quartz.

COMMERCE. The imports and exports for three successive fiscal years are given as follows:

	1905-6	1906-7	1907-8
Imports.....	\$10,414,274	\$10,426,040	\$10,428,910
Exports.....	12,086,276	12,101,161	12,102,956

The details of the trade for 1906-7 are as follows: Articles of import: Flour, \$1,529,025; textiles, \$1,540,921; coal, \$565,208; machinery, \$444,323; salt pork, \$431,418; hardware, \$415,853. Exports: Codfish, \$7,873,172; copper and copper ore, iron pyrites and other minerals, \$1,353,760; cod, whale, and seal oil, \$1,011,426; tinned lobsters, \$383,767; sealskins, \$194,300. Imports from Canada, \$3,669,098; United States, \$3,447,359; Great Britain, \$2,669,934;



Courtesy of the "Review of Reviews"

SIMON NEWCOMB

exports to Brazil, \$2,063,444; Portugal, \$1,841,968; Canada, \$1,611,480; United States, \$1,394,269; Great Britain, \$1,492,795.

COMMUNICATIONS. There are 638 miles of railway, government-owned. Length of telegraph lines (1907), 3088 miles; of telephone wires, 350. Communication between coast towns and with the mainland is maintained by a fleet of eight first-class steamers. Tonnage entered and cleared in 1907-8, 1,834,000.

FINANCE. The revenue, expenditure and debt, for three successive fiscal years, are given as follows:

	1905-6	1906-7	1907-8
Revenue.....	\$ 2,574,069	\$ 2,837,142	\$ 2,837,200
Expenditure..	2,448,814	2,711,788	2,765,600
Debt.....	22,043,838	22,371,867	22,431,000

GOVERNMENT. The colony is administered by a governor (1909, Sir Ralph Champneys Williams), aided by a responsible executive council of nine and a legislative council (appointed for life). The House of Assembly has 36 members, elected by popular vote.

HISTORY. The general elections of November having given each party eighteen seats, threatened to cause a deadlock. Sir Edward Morris formed a new Ministry early in March, but Parliament was prorogued, and a new general election was ordered and held in May. By this the Opposition under Sir Edward Morris retained its fifteen seats and gained ten more. The argument against the Bond Ministry had been in general its failure to gain for the country the promised benefits, and the low price of fish was cited as a result of the government's policy. Against the Opposition it was said that its success meant confederation with Canada. The legislature was opened on June 1 by the Governor, Sir William MacGregor, who announced that the Fisheries Dispute with the United States would be referred to The Hague, and the Labrador boundary question to the Privy Council. The government programme included among other features, tariff revision, old age pensions, railway improvements, grants to education, improved steamship service with Labrador and on the coast, and a campaign against tuberculosis. In July trouble arose with the crews of French steam trawlers on the Grand Banks, resulting in the killing of one of the men. The new Governor, Sir Ralph Williams, arrived at St. John's early in September. In a speech delivered in the following month, he referred to the opening of the mills of the Anglo-Newfoundland Development Company on October 9, and to the prosperity that was likely to result from the development of the paper industry, for which Newfoundland with its inexhaustible supplies of food was well fitted. It was announced that the *modus vivendi* in the Fisheries matter was to remain in force pending the Hague settlement. See **EXPLORATION.**

NEW GUINEA. The largest of the East Indies. It consists of British, Dutch, and German dependencies. See **DUTCH EAST INDIES**; **GERMAN NEW GUINEA**; **PAPUA, TERRITORY OF**; **EXPLORATIONS.**

NEW HAMPSHIRE. One of the North Atlantic Division of the United States. Its area is 9341 square miles. Its population in 1909, according to a Federal estimate made in that year, was 443,140.

MINERAL PRODUCTION. The most important mineral product of the State is granite, of which the product in 1908 was valued at \$867,028, as compared with a value of the product of 1907 of \$647,721. The clay products of the State in 1908 were valued at \$371,640, as compared with a value of the product of 1907 of \$510,599. Other mineral products of less value are coal products, mineral waters, mica, pottery, precious stones and whetstones. The total value of the mineral products of the State in 1908 was \$1,614,277, as compared with a value of the product of 1907 of \$1,390,360.

AGRICULTURE AND STOCK RAISING. The acreage, value and production of the principal farm crops of the State in 1909, according to the figures of the United States Department of Agriculture, were as follows: Corn, 1,053,000 bushels, valued at \$800,000, from 30,000 acres; oats, 441,000 bushels, valued at \$282,000, from 14,000 acres; barley, 50,000 bushels, valued at \$40,000, from 2000 acres; buckwheat, 44,000 bushels, valued at \$33,000, from 2000 acres; potatoes, 2,730,000 bushels, valued at, \$1,747,000, from 21,000 acres; hay, 621,000 tons, valued at \$11,116,000, from 640,000 acres; tobacco, 170,000 pounds, valued at \$25,500, from 100 acres. The acreage and production of farm crops has changed but little for the last few years. All kinds of farm animals, except neat cattle, have increased slightly.

EDUCATION. The biennial report of the Superintendent of Public Instruction for the fiscal year ended July 15, 1908, showed 2127 schools, 1234 graded schools, and 54 high schools. There were in the State on the same date 37,204 boys of school age, 5 to 16, and 36,861 girls, or a total of 74,065. The average attendance was 49,398. There were 126 men teachers with an average salary of \$41.83, and 2529 women teachers with an average monthly salary of \$36.01. The total revenue for the support of the schools during the year was \$1,683,535, and the total expenditures amounted to \$1,540,123.

FINANCE. According to the report of the State Treasurer for the year ended August 31, 1909, the balance at the end of the fiscal year 1908 was \$149,998. The income for the fiscal year 1909 amounted to \$1,926,212, and the expenditures amounted to \$1,994,697, leaving a balance for the fiscal year 1909 of \$81,513. The chief sources of revenue are from the State tax, railroad tax, insurance tax and legacy tax. The chief disbursements are for the legislature and for State institutions. The bonded debt at the end of the fiscal year amounted to \$831,700. Nearly one-half the actual receipts are not revenue, and more than \$750,000 of the disbursements are not expenses. A savings bank tax of nearly \$500,000 all goes back to towns. It is not revenue when it comes in, and is not expense when it is paid out.

CHARITIES AND CORRECTIONS. Among the charitable and correctional institutions of the State are the following, with number of inmates in 1908: New Hampshire Industrial School, at Manchester, 176; New Hampshire School for Feeble-Minded Children, at Laconia; New Hampshire Soldiers' Home, at Tilton, 70. There are also orphans' homes and homes for dependent children and other similar institutions. The juvenile court law which went into effect July 1, 1907, has attracted much attention in the State, and is regarded with favor by those in charge of the institutions.

POLITICS AND GOVERNMENT. On January 7, Henry B. Quinby, of Laconia, Republican, was inaugurated Governor. On January 19, the legislature voted to reëlect United States Senator Jacob H. Gallinger, Republican, for the full term of six years from March 4, 1909. The joint ballot of the House and Senate stood 258 for Senator Gallinger and 108 for Oliver E. Branch of Manchester, the Democratic candidate. Political legislation was enacted providing for the nomination of all candidates for political offices by direct primaries on the first Tuesday of September, 1910, and biennially thereafter; a drastic law prohibiting free railroad transportation of public officials or private persons, except railroad officers and employees and their families; an anti-legislative lobby law; the office of State auditor was created; January 1 made a legal holiday; \$1,000,000 appropriated for the improvement of highways; and provision made to take the sense of the voters at the November 10 election of 1910 as to the expediency of calling a convention to revise the State constitution. Legislation looking to a revision of the tax laws of the State and the creation of a permanent tax commission was defeated. The principal questions to be considered by a constitutional convention, if called, are the reduction of the size of the House (now about 400 members and to be increased by the 1910 census), and permitting the taxation of intangibles at a lower rate than other property. See **ELECTORAL REFORM.**

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: A direct primary nomination law was enacted and a forestry commission was established. An appropriation of \$1,000,000 for the employment of three main highways was made. A State flag was adopted. Dispensaries for the prevention and treatment of tuberculosis were established, and provision was made for indeterminate sentence and parole of prisoners.

OFFICERS. Governor, Henry B. Quinby; Secretary of State, Edward N. Pearson; Treasurer, Solon A. Carter; Auditor, William B. Fellows; Adjutant-General, Harry B. Cilley; Attorney-General, Edwin G. Eastman; Superintendent of Education, Henry C. Morrison; Commissioner of Agriculture, Nahum J. Bachelder; Commissioner of Insurance, George H. Adams—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Frank N. Parsons, Rep.; Associate Justices, Robert J. Peaslee, Dem.; Reuben E. Walker, Rep.; John E. Young, Rep.; George H. Birgham, Dem.; Clerk, A. J. Shurtleff, Rep.

The State Legislature of 1909 was composed of 20 Republicans and 4 Democrats in the Senate, and 272 Republicans and 117 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

NEW HEBRIDES. A group of Melanesian islands in the Pacific Ocean, northeast of Australia, jointly administered by France and Great Britain. Area, 5106 square miles; population, 70,000. By the conclusion of a convention signed October 20, 1906, the group of the New Hebrides, including the Banks and the Torres Islands, form a region of joint influence under the administration of two high commissioners appointed one by each of the two

nations. There are French and English courts, with a judge foreign to both nations. Corn, coffee, vanilla and cocoanut trees are grown. Sulphur is abundant in several regions. A severe earthquake occurred in May, wrecking the Tongoa mission and killing four persons.

NEW JERSEY. One of the Middle Atlantic Division of the United States. Its area is 8224 square miles. The population in 1909, according to a Federal estimate made in that year, was 2,352,522.

MINERAL PRODUCTION. The products of clay are the most important of the mineral resources of New Jersey. In 1908 these amounted in value to \$12,313,696, as compared with \$16,005,460 in 1907. Of these products, brick and tile amounted in value to \$6,363,705, and pottery to \$5,949,991. The value of the brick and tile decreased nearly \$3,000,000, as compared with 1907, and the pottery about \$1,000,000. The State ranks third in the value of these products, being surpassed only by Ohio and Pennsylvania. In the manufacture of Portland cement New Jersey—up to 1908—ranked second, being surpassed only by Pennsylvania. In 1908, however, there was a heavy decrease in this production and heavy increases in some of the Middle Western States, which gave to New Jersey fifth place. The value of the product in 1908 was \$2,416,009 from 3,208,446 barrels, while in 1907 the value was \$4,738,516 from 4,449,896 barrels. There are three plants in the State producing Portland cement. The production of pig iron in 1908 amounted to 225,372 long tons, valued at \$3,370,000. This was a marked decrease from the production of 1907, which was 373,189 long tons, valued at \$7,554,000. In 1908 there were 11 blast furnaces in the State, of which three were in blast and eight out. The State has large areas of stone and also produces considerable quantities of zinc. Among other mineral products are sand and gravel, lime and glass-sand. The total value of the mineral products of the State in the year 1908 was \$21,315,631, as compared with the value of the product of 1907 of \$32,800,299.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to the figures of the United States Department of Agriculture, were as follows: Corn, 9,483,000 bushels, valued at \$6,733,000, from 290,000 acres; winter wheat, 1,969,000 bushels, valued at \$2,146,000, from 110,000 acres; oats, 1,530,000 bushels, valued at \$765,000, from 60,000 acres; rye, 12,888,000 bushels, valued at \$1,018,000, from 79,000 acres; buckwheat, 283,000 bushels, valued at \$209,000, from 13,000 acres; potatoes, 7,200,000 bushels, valued at \$5,904,000, from 80,000 acres; hay, 546,000 tons, valued at \$9,009,000, from 437,000 acres. The tendency in recent years has been to replace staple farm products by vegetable and garden products for the supply of numerous markets near which much of the farm land of the State is advantageously situated. Fruit and garden truck is largely produced. Among farm animals, dairy cows are the most numerous. The estimated wool clipped in 1909 was 176,000 pounds.

FISHERIES. The total value of the products of the fisheries of the State for the year ending December 31, 1908, was \$3,068,590. Of these products the most important in point of value

were oysters, of which there were taken for market purposes 919,500 bushels, valued at \$883,880, and for seeding purposes, 1,666,900 bushels, valued at \$484,620. Next in point of value were clams, of which 305,800 bushels, valued at \$336,500, were taken. Other important fish taken were shad, 3,004,200 pounds, valued at \$229,490; squeteague or trout, 11,814,000 pounds, valued at \$341,600; sea bass, 3,160,600 pounds, valued at \$123,350; cod, 3,766,700 pounds, valued at \$129,930; bluefish, 1,802,500 pounds, valued at \$96,850. There were engaged in the fisheries of the State 4041 independent fishermen, while 3190 wage-earning fishermen were employed. The number of vessels engaged in the fisheries of the State was 428, valued at \$590,044.

EDUCATION. The report of the Superintendent of Education showed a total enrollment in the public schools in 1908 of 402,866 and an average daily attendance of 289,167. The teachers numbered 10,279, of whom 9173 were women. There were 558 teachers employed in evening schools in nine cities. The average yearly salary of all teachers was \$697,006. The average duration of the school term was 9.1 months. The total receipts for public schools during 1908 was \$17,693,858, of which \$1,909,957 was the balance from the preceding year. The total expenditures amounted to \$14,951,775. The total value of the school property is \$28,582,358.

FINANCE. The report of the State Treasurer showed a balance on November 1, 1908, of \$2,818,276. The total receipts for the fiscal year ended October 31, 1909, were \$8,637,221, while the total disbursements were \$7,774,615, leaving a balance on October 31, 1909, of \$3,680,082.

CHARITIES AND CORRECTIONS. The legislature of 1908 made an appropriation for the year ended October 31, 1909, of \$1,282,525 for charities, \$666,042 for corrections and \$105,850 for soldiers' home, an aggregate of \$2,054,469. There were under institutional care in the State 6408 in charitable institutions, 2646 in criminal institutions and 733 in soldiers' homes. The legislature of 1907 passed a law requiring societies and individuals bringing into the State dependent children to obtain permission of the Superintendent of Charities and Corrections, with whom a bond of \$1000 must be filed that the children shall not become public charges.

POLITICS AND GOVERNMENT. The legislature met in its annual session on January 12. The Senate elected Samuel K. Robbins of Burlington county President, and Professor John D. Prince of Columbia University, a member of the Passaic delegation, was elected Speaker. Governor Fort in his annual message renewed many of his recommendations contained in his inaugural address of 1908 which failed to receive favorable consideration at the hands of the legislature of that year, and added several suggestions for future legislation based upon the reports of investigating committees which he had appointed and his years of experience as chief executive of the State. Among the topics of most vital public interest which he discussed were the constitutional amendments providing for the reorganization of the judiciary; the election of members of the Assembly by districts instead of counties, and increasing the term of Governor and Senators

from three to four years, and of the Assemblymen from one to two years. All of these amendments were overwhelmingly defeated at a special election held on September 14. He discussed also the excise question, the regulation of motor vehicles, the enactment of a public utilities law, the consolidation of State departments and the establishment of an ocean boulevard extending along the Atlantic coast from one end of the State to the other. In dealing with the excise question Governor Fort declared that there was no sentiment in the State to justify Prohibition legislation. He asserted that the Republican party could not, except in bad faith with the people, repeal the so-called "bishop's law," which regulates the issuing of liquor licenses in the State. He made an urgent appeal for greater uniformity in granting licenses, holding that a board composed of character and independence, free from removal at local behests, would work out a solution of the whole problem on lines conforming with public sentiment. Several modifications of the excise law were suggested. In urging the passage of the public utilities law, which had failed in 1908, Governor Fort said: "An intelligent conservative board of public utilities commissioners, with adequate powers, will strengthen public confidence in the securities of all such companies and prevent harm to any interests. There is absolutely no reason not founded in cupidity against a public utilities commission." He also urged various changes in the registration and primary laws and in the methods of voting and recommended the enactment of an employers' liability act, and the conservation of the State's natural resources. On January 19 Governor Fort sent a special message to the legislature urging the need for prompt and decisive action for relieving the State from the threatened treasury deficit. He estimated at the close of the fiscal year 1909, on October 31, that this deficit would be approximately \$750,000. This condition was brought about by the increase in the cost of operating the State government in recent years. During the fiscal year 1909 this cost was in round figures \$4,300,000. It results from the natural increase from the growth of the State and the extension of its functions in various directions. Governor Fort suggested two means of meeting the situation, first, the repeal or modification of the laws of 1906, which limited the amount of taxes for State purposes to one-half of 1 per cent. of the taxes assessed against the right of way, tangible personal property and franchises of railroad companies; second, the repeal of all the railway tax laws and throwing the railroad property into the general property of the State for taxation locally, and hereafter to have a direct State tax for the support of the State. Governor Fort, personally, did not favor the direct tax plan, and pointed out that unless radical changes were made in the present administration of the State's finances it would follow as a necessary consequence. The Governor disapproved the policy of the State adopted in 1906, which turned back to the local municipalities toward the payment of school taxes all but one-half of 1 per cent. of the railroad taxes, reserving the remainder for the State. He pointed out that this plan made no provision for the increased needs of the State government resulting from the in-

crease of population and the constantly increasing demands of State interests. He showed that while the taxes of the railroads had greatly increased since 1884, the State was obtaining no larger share for government purposes than it was twenty-four years ago. On April 6 a bill was introduced by Senator Frelinghuysen increasing the franchise taxes of the larger miscellaneous corporations incorporated in the State and taxed upon the basis of their issue and outstanding capital stock. This bill was applicable only to corporations having more than \$5,000,000 of outstanding stock, the taxes on stock up to that amount remaining as formerly. The bill increased from \$50 to \$150 per million the State tax imposed on stock exceeding that amount. This made the bill applicable to about 200 of the larger corporations of the State upon an outstanding capital stock aggregating approximately \$5,000,000,000. This bill failed to pass the Senate.

The chief measures passed at this session of the legislature are noted in the paragraph *Legislation* below. For the most part, important recommendations of Governor Fort were not acted upon favorably by the legislature.

The excise commission appointed by Governor Fort on January 18 submitted a draft of the proposed law to take the place of existing legislation on the liquor question. This measure contemplated a complete revision of the present laws, which provide for the election of excise boards. Licenses are to be divided into five classes: Class A, retail; Class B, wholesale; Class C, beer bottlers' license; Class D, licenses for selling liquors on cars and steamboats; Class E, license for clubs to sell to members only. The bill limited the number of licensed places to one for every 500 inhabitants. The selling of liquor on Sunday was absolutely forbidden. This bill failed to be enacted into a law.

On March 6 the Court of Errors and Appeals handed down an important corporation decision affecting the device of finance commonly known as the "holding" company. The decision had the effect of greatly restricting the operation of the holding company principle under the New Jersey general corporation act, which was generally accepted as giving to the corporations of the State almost unlimited rights in the matter of acquiring, selling, pledging or voting the securities of other corporations. The case in question was that of the State against the Atlantic City and Shore Railroad, which owns a line of railroad from Egg Harbor to Atlantic City, and undertook, through stock ownership and lease, to exercise the franchise rights of the Central Passenger Railway Company, a trolley road running in and about Atlantic City, and several other contiguous trolley lines which are considered feeders for the Atlantic City and Shore Railway. The latter road is controlled by the Pennsylvania Railroad. The State challenged the right of the Atlantic City and Shore Railway to acquire and own stocks and bonds of the Central Company or to operate cars over its roads on the ground that such powers were not conferred upon it under the railway act and cannot be derived from Section 51 of the general incorporation act. This position was upheld by the highest court of the State in an opinion rendered by Chancellor

Pitney, and a judgment was ordered ousting the Atlantic City and Shore Railway from the trolley franchises it had acquired and requiring it to dispose of the stocks and bonds.

Primary elections for the nomination of officers to be voted for in the election of November 2 were held on September 28. Nominations were made for 60 Assemblymen and eight State Senators, together with a number of local and municipal officers. Mark M. Fagan, one of the most prominent exponents of the New Idea in New Jersey in politics, received the Republican nomination for the mayoralty of Jersey City, while H. Otto Wittpenn was renominated by the Democrats. In several counties the contest was bitter between the New Idea forces and the regular party organizations. The primary elections in general resulted in a defeat for the New Idea Republicans. They won in Hudson county and carried an occasional ward or district, but as a whole they were decisively beaten. In Essex county particularly, the stronghold of Senator Colby, the leading advocate of the New Idea, the regulars were in overwhelming majority. In the election held on November 2 Mayor Wittpenn defeated Fagan, his Republican opponent, by a majority of about 7500. The Democrats won also in Trenton, reflecting Dr. Walter Madden by about 3000 plurality. The Democrats carried Hudson county by a majority of about 10,000. The election was a comparatively quiet one.

The diversion of the subterranean waters in New Jersey to supply Staten Island was vigorously opposed by Governor Fort, who in October expressed his intention of calling a special session of the legislature for the purpose of passing a law to prevent such action. from custody on furnishing \$5000 bail, and matter was left to the legislature of 1910.

OTHER EVENTS. The enforcement of the Sunday closing law at Atlantic City, which resulted in much confusion in 1908, was also a source of contention in 1909. On September 4 Mayor Franklin P. Stoy of Atlantic City was arrested on a warrant charging him with misdemeanor in having failed to close the bar-rooms on Sundays, as ordered by the Attorney-General of the State. Mayor Stoy was released from custody on furnishing \$5,000 bail, and the case never came to trial.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: Columbus day, October 12, was made a legal holiday throughout the State. Measures were enacted requiring seats for female employees in shops and stores. The liability of the employer for the death of the employees is extended. Cities are empowered to establish and maintain plants for the treatment of sewage and steps were taken to protect oyster beds from pollution. Provision was made for art, science and industrial museums in cities. Rebating in life insurance is forbidden and a commission of uniform legislation was appointed. Provision is made for sanitary conditions in the preparation of food. A board of protectors for the "prevention of drunkenness" is established, and saloonkeepers are prohibited from displaying in their saloons the particular brands of liquor they dispense.

OFFICERS. Governor, John Franklin Fort; Secretary of State, S. D. Dickinson; Treasurer, Daniel S. Voorhees; Auditor, William E. Drake;

Comptroller, Henry J. West; Attorney-General, Edmund Wilson; Adjutant-General, Wilbur F. Sadler, Jr.; Superintendent of Education, C. J. Baxter; Secretary Board of Agriculture, Franklin Dye; Commissioner of Insurance, Vivian M. Lewis—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, W. S. Gummere, Rep.; Justices, Charles W. Parker, Rep.; T. W. Trenchard, Rep.; Alfred Reed, Dem.; C. G. Garrison, Dem.; James J. Bergen, Dem.; Willard P. Voorhees, Rep.; James F. Minturn, Dem.; F. J. Swayze, Rep.; Clerk, William Riker, Jr., Rep.

Court of Errors and Appeals: Judges, J. W. Bogert, George R. Gray, Elmer E. Green, W. H. Vreedenburgh, G. D. W. Vroom, Peter V. Voorhees; Chancellor, William J. Magie, and the Supreme Court Justices.

The State Legislature of 1909 was composed of 13 Republicans and 8 Democrats in the Senate, and 45 Republicans and 15 Democrats in the House. The State representatives in Congress will be found in the section *Congress of the article UNITED STATES.*

NEW MEXICO. A Territory in the South-western part of the United States. Its area is 122,634 square miles. Its population in 1909, according to a Federal estimate made in that year, was 226,835.

MINERAL PRODUCTION. The aggregate value of the mineral production of the State in 1908 was \$4,937,890, a marked decrease from the value of the product of 1907, which was \$7,517,843. The decline was brought about chiefly by the closing of many copper, lead and zinc mines on account of adverse conditions in 1908. The most valuable of the mineral products of the State is coal, of which 2,467,937 tons, valued at \$3,368,753, as compared with 2,628,959 tons, valued at \$3,832,128 in 1907. Copper produced in 1908 showed a very considerable decline, being scarcely more than one-half the product of 1907. The comparative figures are as follows: 1908, 4,991,351 pounds, valued at \$658,858; 1907, 10,140,140 pounds, valued at \$2,028,028. Gold was produced to the amount of 14,817 fine ounces, valued at \$306,300, as compared with 15,964 fine ounces, valued at \$330,000 in 1907. The production of silver in 1908 was 400,900 fine ounces, valued at \$214,500 as compared with 599,500 fine ounces, valued at \$395,700 in 1907. The other mineral products of the State are comparatively unimportant. Clay products in 1908 amounted to \$140,671; lead, \$49,224; precious stones, \$72,100 and stone, \$15,955. Mineral waters, sand and gravel, and zinc are produced in small quantities.

The production of gold in 1909 was estimated by the Director of the Mint at 133,464 fine ounces, valued at \$278,300. The silver production was 329,200 fine ounces, valued at \$171,200.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, are as follows: Corn, 2,128,000 bushels, valued at \$1,915,000, from 68,000 acres; spring wheat, 1,004,000 bushels, valued at \$1,175,000, from 41,000 acres; oats, 960,000 bushels, valued at \$334,000, from 24,000 acres; barley, 40,000 bushels, valued at \$40,000, from 1000 acres; potatoes, 85,000 bushels, valued at \$86,000 from 1000 acres; hay, 481,000 tons,

valued at \$5,339,000, from 185,000 acres. The number of sheep in the State is large. The wool clipped is estimated at 21,828,720 pounds. New Mexico ranking third in its production. See **STOCK RAISING.**

The dry farms of the State produced in forage and grain crops \$30,000,000, while the truck gardens and cantaloupe and vegetable crops swelled the total agricultural production for the year to almost \$50,000,000. Under beneficial irrigation legislation, 142 irrigation and power projects were filed in the office of the territorial engineer during 1909. These provided for an expenditure of \$7,004,017 to reclaim 1,174,203 acres, and an expenditure of \$9,828,205 to develop 133,220 horse power. These were, in addition to the three great Federal projects, that of the Rio Hondo, which was completed; the Carlsbad project, in part completed, and under which 20,000 acres are now receiving water, and the Engle project, which is to cost \$7,000,000, under which 20,000 acres are already under cultivation. The great immigration movement to the dry farming sections of the territory, which began four years ago, continued in 1909, and 17,000 homesteads were filed upon the public lands, many of them under the new 320-acre act. Fully 3,000,000 acres are now under cultivation by scientific farming and 150,000 people live on the so-called dry farms.

EDUCATION. A law was passed by the legislative session of 1909, making instruction in English compulsory in all public schools. The legislature also created a Spanish-American Normal School at El Rito, at which the children of Spanish speaking parents are trained to teach school. The school attendance in 1909 was 46,005. There were 484 male teachers and 774 female teachers.

FINANCE. The report of the State Treasurer showed a balance from the fiscal year ended June 1, 1907, of \$345,125 and the receipts for the fiscal year 1908 were \$754,800, while the expenditures were \$721,272, leaving a balance on June 1, 1908, of \$378,653. The principal source of revenue was the property tax. The territorial debt on July 1, 1908, amounted to \$1,003,000, as compared with \$803,000 in 1907.

CHARITIES AND CORRECTIONS. Extensive permanent additions and improvements were made to the State Penitentiary, Insane Asylum, the Deaf and Dumb School and the School for the Blind.

POLITICS AND GOVERNMENT. The legislative assembly, which met during the first three months of the year, devoted itself chiefly to constructive legislation, although, in anticipation of early Statehood, few measures of a radical nature were adopted. In addition to those noted in the paragraph below, measures were enacted providing for the acceptance of the Carey act for the Territory. Provision was also made for the extension of irrigation and the securing of water rights, and for the vigorous prosecution of good roads work, for which purpose a good roads commission was created and a liberal appropriation was made. Acts were passed providing for the strengthening of the militia and for improving public education. An attempt to pass a local option law, recommended by Governor Curry, failed in the legislative Council after it had passed the Assembly. The county of Curry was created out of parts of Quay and Roswell counties, with the county seat at Clovis, a town which

has grown in two years from an unoccupied section of the dry farming country to a city of 5000 people. Various other changes were made in county boundaries. A new good roads law resulted in work being begun on three magnificent roads, one from Santa Fe to Albuquerque; another from Silver City to Mogollon, and the third from Carrizozo to Roswell, while the road from Raton to the Colorado boundary was completed by convict labor, and forty miles of the superb scenic highway over the Pecos National Forest and Sangre de Cristo Range between Santa Fe and Las Vegas were finished during the year.

The Territory during the year completed a \$30,000 Executive Mansion, built a \$50,000 addition to the Capitol, and completed six National Guard Armories.

Shortly after the adjournment of the legislature Governor Curry resigned his office, feeling that the constructive work he had set out to accomplish had been done and that his personal business affairs demanded his attention, but upon the urgent wish of President Taft he remained in office, but will retire on March 1, 1910. President Taft named as his successor Chief Justice William J. Mills and at the same time William H. Pope of Roswell was appointed Chief Justice.

Upon the plea of Senator Beveridge, chairman of the Senate Committee on Territories, at the close of the last session of the Sixtieth Congress, the Statehood enabling act, which had passed the House by a large majority, and for the passage of which President Roosevelt had worked assiduously, was not acted upon. The Senate leaders asked for time to investigate conditions in the Territories and desired that their admission be put off to the new administration. Requests of Governor Curry and the territorial legislature for a Congressional investigation of conditions in the Territory were not acted upon, and President Taft upon his visit to New Mexico in the fall renewed his promise to assist in the admission of New Mexico as a State, and urged its admission in his annual message to Congress in December.

On July 1, 1909, the Seventh Judicial District was organized with headquarters at Socorro, and President Taft appointed M. C. Mechem as presiding judge. Alford W. Cooley was appointed presiding judge of the Sixth Judicial District, with headquarters at Alamogordo. During the year there were no failures in national or territorial banks, no strikes or lynchings and no riots or serious coal or railroad accidents within the Territory.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: Measures were passed looking to the suppression of contagious disease among livestock. Holding companies are authorized, and provision is made for indeterminate sentence and parole. Women are prohibited from loitering about the saloons and a conservative commission for national resources is created.

OFFICERS: Governor, William J. Mills, Rep.; Secretary of Territory, Nathan Jaffa, Rep.; Treasurer, Miguel A. Otero, Rep.; Auditor, W. G. Sargent, Rep.; Adjutant-General, R. A. Ford, Rep.; Attorney-General, Frank W. Clancy, Rep.; Supt. Education, J. E. Clark, Rep.; Com. of Insurance, Jacobo Chavez, Rep.; Com. of Agriculture, Robert P. Ervien.

JUDICIARY: Supreme Court, Chief Justice W. H. Pope; Associate Justices, John R. McFie, Ira A. Abbott, A. W. Cooley, M. C. Mechem, and F. W. Parker; Clerk, José D. Sena—all Republicans.

The territorial legislature of 1909 was composed of 9 Republicans and 3 Democrats in the Senate and 20 Republicans and 4 Democrats in the House. The territorial representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

NEW ORLEANS ANT. See ENTOMOLOGY.

NEW SOUTH WALES. A State of the Australian commonwealth. Area, 310,372 square miles. Estimated population at end of 1908, 1,605,009. Capital, Sydney (population, 127,460; with suburbs, 592,100). The executive authority rests with a governor appointed by the Crown and acting through a responsible ministry. The legislative power devolves upon a parliament of two houses, the Legislative Council (consisting of appointed life members, 57 in 1909) and the Legislative Assembly (90 members elected for three years by male and female suffrage). The Governor in 1909 was Lord Chelmsford; the Premier and Attorney-General, Charles Gregory Wade. For statistics and other details, see AUSTRALIA.

HISTORY. The programme of the government party as outlined in May included the vigorous execution of the closer settlement policy, encouragement of immigration, irrigation, railway development, and the adoption of effective administrative measures to prevent strikes and lockouts. Considerable progress had already been made under the Wade Ministry in internal improvements. Important public works had been undertaken; bids had been made for the great reservoir at Barren Jack near the capital, and the third section of the railway in the north coast region had been begun. As to closer settlement, the area resumed or in process of resumption within the past four years amounted to 1,413,342 acres (1896 farms); and private owners had been encouraged to dispose of 1,500,000 acres (1500 farms) for closer settlement in addition to the 11,000,000 acres of Crown lands applied to that purpose by the Lands Department. At the opening of Parliament on June 29 the Governor, Lord Chelmsford, spoke of a possible extension of the Crown Lands act to meet the necessities of closer settlement, referred to the great prosperity of the past year, resulting in a financial surplus, and promised that the government would carry on a much more active immigration policy. In October the Legislative Assembly passed a Closer Settlement bill authorizing the government to take possession after six months' notice of estates valued at £10,000 or more, situated in towns or within five miles therefrom, which restricted closer settlement unless arrangements were made with the owners for subdivision on terms to be agreed upon. In the budget speech of September 29 a surplus for the coming year was anticipated. Since the Australian commonwealth agreed to do its full share in Imperial defense, the New South Wales *Dreadnought* fund was no longer needed for its original purpose and it was decided to apply it to the founding of a naval college near Sydney for the training of the Australian squadron officers and with the balance to establish farms for the training of

young British immigrants. On November 8 the coal mines of the Newcastle and Maitland districts went on strike. The strikers numbered about 12,000. Their demands included the minimum wage, an eight-hour day, the decision of questions between masters and men in open conference and increased pay. Many workmen in other trades were thrown out of employment and the effects were so serious that the question of nationalization was raised. In the Legislative Assembly the government was urged to try and induce the owners to hold an open conference and if its attempt failed to assume temporary control of the mines. The Premier, Mr. Wade, promised to try and bring about the resumption of work and secure the open conference, but said that it was not the time to consider the plan of nationalization. A motion of the Labor party for the nationalization of enough mines to supply the needs of the community was defeated by 39 to 25. About December 1, the number of miners out was estimated at 12,300 and of those thrown out of employment in other occupations at 14,300. It was difficult to deal with such a mass of strikers and there was fear of provoking a general strike. The intervention of the Governor-General, Lord Dudley, was considered. At the close of November the government secured the appointment of a compulsory wage board, arrested three officials of the Northern Miners' Confederation on the charge of conspiracy, and received from the Industrial Court authority to prosecute other officials under the Industrial Disputes act. See STRIKES AND LOCKOUTS.

NEW YORK. One of the North Atlantic Division of the United States. Its area is 49,204 square miles. The population, in 1909, according to a Federal estimate made in that year, was 8,706,039.

MINERAL PRODUCTION. The mineral industry of the State has grown steadily since 1904. This growth has been shown particularly in iron mining. There were mined in 1908 697,473 tons, which, although a considerable decrease from the product of 1907, 1,375,020 tons, largely brought about by the business depression, is a great advance over the production of the previous ten years. The value of the product in 1908 was \$2,098,247, as against a value for the product of 1907 of \$2,820,135. The clay products in the State in 1909 were valued at \$8,929,224, of which brick and tile were valued at \$7,270,981, and pottery at \$1,658,243. This was a considerable decrease in production, as compared with 1907, when the value of the product was \$11,772,874. This decrease is largely due to a smaller demand for building materials. The State has large deposits of stone and this constitutes an important portion of the mineral production. In the production of salt the State ranks second, being surpassed only by Michigan. There were produced in 1908 9,016,743 barrels, valued at \$2,136,738, as compared with a production of 9,642,178 barrels in 1907 valued at \$2,335,150. Other mineral products of importance are gypsum and petroleum, of which 1,160,128 barrels, valued at \$2,071,533, were produced in 1908, natural gas, pyrite, talc, garnet and crystalline graphite. The value of the mineral products of the State in 1908 was \$45,669,861, as compared with a value of the product in 1907 of \$68,762,815.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 24,120,000 bushels, valued at \$17,894,000 from 670,000 acres; winter wheat, 8,820,000 bushels, valued at \$9,790,000 from 420,000 acres; oats, 37,365,000 bushels, valued at \$18,309,000 from 1,325,000 acres; barley, 1,910,000 bushels, valued at \$1,318,000 from 77,000 acres; rye, 2,720,000 bushels, valued at \$2,176,000 from 160,000 acres; buckwheat, 7,512,000 bushels, valued at \$5,183,000 from 313,000 acres; potatoes, 52,560,000 bushels, valued at \$26,280,000 from 438,000 acres; hay, 5,002,000 tons, valued at \$71,028,000 from 4,764,000 acres; tobacco, 7,050,000 pounds, valued at \$564,000 from 6,000 acres. In the production of potatoes New York far surpasses any other State. The crop in 1909 was largely in excess of that of 1908, which was 34,850,000 bushels. The acreage, however, increased but slightly. New York ranks first also in the production of hay. The hay crop, however, decreased slightly in 1909, the production for 1908 having been 5,717,000 tons. The acreage remained practically the same. The tobacco crop of 1909 was slightly smaller than that of 1908, which was 7,250,975 pounds. The State ranks first in the production of buckwheat, and the crop of 1909 was considerably larger than that of 1908, which was 6,827,000 bushels. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 717,000; dairy cows, 1,771,000; other cattle, 889,000; sheep, 1,177,000; swine, 656,000. The wool clipped in 1909 was estimated at 5,428,800 pounds.

FISHERIES. The value of the products of the fisheries of the State for the year ending December 31, 1908, was \$4,592,440. Of these products the most important in point of value was oysters, of which 1,845,800 bushels, valued at \$2,171,400 were taken for market purposes, and 614,100 bushels, valued at \$380,700, for seeding purposes. Next in point of value was squeteague or trout, 11,151,100 pounds, valued at \$451,170; clams, 187,600 bushels, valued at \$291,970; bluefish, 3,191,500 pounds, valued at \$290,660; flounders, 4,629,300 pounds, valued at \$141,110; scallops, 72,300 gallons, valued at \$98,170, and butterfish, 1,228,600 pounds, valued at \$64,480. There were engaged in the fisheries of the State 3,270 independent fishermen and 3505 wage-earning fishermen were employed. There were 590 vessels, valued at \$1,380,196 engaged in the fisheries of the State.

EDUCATION. According to the report of the Commissioner of Education, the school attendance for the State in 1909 aggregated 1,840,909. This included 1,284,729 children in the common elementary schools; 101,987 in the common high schools; 6494 in the normal schools; 36,287 in universities, colleges and professional schools; 42,802 in academies, and 225,000 in private schools. The teachers numbered 50,788, of whom 37,152 were in the common elementary schools. The value of the property of these institutions was \$329,533,991, of which \$157,811,999 is used by the common elementary schools, \$26,146,819 by the common high schools and \$112,990,676 by the universities, colleges and professional schools. The total expenditures for these educational institutions in 1909

aggregated \$76,696,217, of which \$47,146,722 was spent for the common elementary schools, \$6,816,160 for the common high schools, \$16,456,213 for the universities, colleges and professional schools, and \$83,928 for evening schools. During the year the attendance increased 47,356 and the number of teachers increased 1,688. The Commissioner in his annual report devotes considerable space to the progress made in the establishment of vocational schools and the problems connected with their further development, to which he is giving special attention.

CHARITIES. The Psychiatric Institute of the State Hospitals for the Insane is situated on Ward's Island, in connection with Manhattan State Hospital, and is under the directorship of Prof. Adolf Meyer, M. D. The number of inmates in the various hospitals at the close of the fiscal year, September 30, 1909, was as follows: Utica, 1388; Willard, 2377; Hudson River, 2943; Middletown, 1763; Buffalo, 1955; Binghamton, 2238; St. Lawrence, 1887; Rochester, 1380; Gowanda, 1006; Kings Park, 3108; Long Island, 778; Manhattan, 4515; Central Islip, 4025; Matteawan, 759; Dannemora, 368; total, 30,490. There were also 1051 patients in the private hospitals licensed by the Commission in Lunacy, making a grand total of 31,541 patients. The total expenditure for maintenance was as follows: Officers' salaries, \$275,943; employees' wages, \$1,830,458; provisions and stores, \$1,821,716; ordinary repairs, \$102,481; farms and grounds, including live-stock, \$126,678; clothing, \$191,720; furniture and bedding, \$126,883; books and stationery, \$30,589; fuel and light, \$481,641; medical supplies, \$34,244; miscellaneous, \$161,352; transportation of patients, \$27,105; making a total of \$5,210,810. The receipts from partly or fully reimbursing patients, stewards' sales and miscellaneous sources amounted to \$381,169. The commissioners are Albert Warren Ferris, M. D., Sheldon T. Viele and William L. Parkhurst.

POLITICS AND GOVERNMENT. Charles E. Hughes, who on November 3, 1908, was re-elected Governor of the State by a plurality of about 70,000 over Lewis S. Chanler, the Democratic candidate, was inaugurated on January 1. In his inaugural address his most important utterance was in regard to the centralization of power in the Governor. He urged that the Governor should have direct control over the heads of the administrative departments of the State, as the President of the United States has of the great executive departments of the Federal government. The address dealt mainly with the executive arm of the State government, its powers and limitations. In his annual message sent to the legislature on January 6, Governor Hughes dealt with many topics of State and local interest. Three topics, however, stood out as the most important, in his opinion, to be considered by the legislature. These were the questions of primaries, elections and the centralization of power in the hands of the Governor. In regard to the primary law, he recommended a system of direct nominations by all parties for all elective offices other than those of Presidential electors, filled at the November elections or at special elections called to fill vacancies in such offices. He recommended also the adoption of a simplified form of ballot

without the party column in which the names of the respective candidates appear but once, grouped under the names of the offices. In addition to these measures, Governor Hughes urged economy of administration and the passage of measures to protect the pollution of streams and for forest preservation. The majority of the legislature was not in sympathy with the chief measures proposed by Governor Hughes and it adjourned without passing any of his important recommendations. In this he found himself weaker than in the legislature of 1908, in which he forced the passage of laws prohibiting gambling at race tracks in the State. A bill for direct nominations was killed on April 8 in the Assembly by a vote of 112 to 28, and at the same time an important bill desired by the Governor which would have brought telegraph and telephone companies under the jurisdiction of the Public Service Commission was also defeated by a vote of 98 to 37. The vote in each case was taken on a motion to sustain the adverse report of a committee. A commission to investigate the subject of direct nominations by an examination of its workings in other States was appointed by the legislature, but as its members were, with one exception, opposed to the enactment of such laws it was considered to be rather a move by the opponents of Governor Hughes than an honest attempt to determine the utility of passing such a measure. A discussion of this proposed law will be found in the article **ELECTORAL REFORM**. Perhaps the most important measure passed in the legislature was that authorizing additional railroad subway construction in New York City, either by the city or by private capital. The session of the legislature of 1909 was, as a whole, notable for the things that it did not do rather than for those it accomplished. Its enactments were almost entirely of a local character.

The action of Governor Hughes on January 1, in approving a resolution adopted by the State Civil Service Commission on December 31, 1908, at his instance, making subject to the provisions of the State civil service law and rules the position of county superintendent, and other officers connected with the highways, was a severe blow to the politicians of the State. The Governor's action withdrew from the patronage of the local Republican machines in 52 counties of the State over one hundred salaried positions.

In 1908 Governor Hughes made two unsuccessful attempts to remove Otto Kelsey from the position of Superintendent of Insurance. The Senate voted twice against his recommendation, although Governor Hughes himself had held a public hearing at which he had questioned Mr. Kelsey severely on the administration of his office, and made it clear that he was unfamiliar with many of the duties which he had to perform. In the latter part of 1908, however, Mr. Kelsey resigned to become Assistant State Comptroller, and on February 5, 1908, Governor Hughes appointed William Horace Hotchkiss of Buffalo State Superintendent of Insurance.

On January 20, Elihu Root (q. v.) was elected United States Senator to succeed Thomas C. Platt, whose term was to expire on March 4. Mr. Root's plurality in the two Houses was 95. On March 23 Governor

Hughes signed a bill passed by the legislature designating October 12 as a legal holiday to be known as Columbus Day.

On September 9 an important and significant meeting of many of the leading Democrats of the State was held at Saratoga. The object of this conference was for the purpose of finding, if possible, some method of restoring the strength of the party in the State and Nation. The call was made by Thomas M. Osborne of Auburn and Edward M. Shepard of Brooklyn and other conspicuous Democrats. Although the conference disavowed any enmity to any Democratic organization in the State, it was notable that no representative was asked to attend from Tammany Hall. Indeed, Mr. Shepard, in an address, warned Tammany that it would only injure the party in State and Nation if it should give offense in the character of the men it was about to nominate for State offices to be filled in the election of November 2. The conference adopted a platform which included strict construction of the Constitution, support of legitimate Federal activities, resistance to Federal encroachment, tariff for revenue, economy, the popular election of United States Senators, nominations and election reforms, anti-imperialism, a Federal income tax and the confinement of the creation and regulation of corporations to the State. An organization was perfected, called the Democratic League.

At an election held on April 6, 1909, the rural communities of Long Island, Nassau and Suffolk counties, voted for license for the next two years. At the election on November 2, the Prohibitionists made substantial gains in Wayne county, but lost in Westchester county. In the latter county only one town voted against the saloons.

Several important judicial decisions were rendered during the year. On March 17, Justice Spencer held that the mortgage tax law passed in 1907 was unconstitutional. The State attempted to collect \$2000 in taxes alleged to be due on a mortgage given by the Union Bag and Paper Co. to the Trust Company of America. The Union Bag Company demurred to the complaint, contending that as applied to them the law was unconstitutional. Justice Spencer sustained the demurrer. On June 1, Justice Betts of the Supreme Court handed down a decision as to the constitutionality of the State labor law which provides semi-monthly payment of wages. He declared that the law was constitutional. On November 9, the Court of Appeals decided that oral betting is not a crime. The decision related to the laws against race-track gambling passed in 1908. Two bookmakers were indicted in Kings county on the charge of bookmaking, and especially with orally laying and publishing odds and accepting a bet as a basis for such odds. The court decided that in such a case the betting was not a crime. A decision which especially affected New York was handed down by the United States Supreme Court in January declaring the constitutionality of the eighty-cent gas bill passed in 1906. This decision will be found discussed in the article GAS.

NEW YORK CITY. On March 8 the commission appointed by Governor Hughes in 1908 to prepare a new charter for New York City, made its report. The proposed charter contained many modifications from the one now

in force in that city. It is much briefer in form, including only 70,000 words, while the former instrument contains half a million. The changes proposed are in general in the direction along which municipal government has moved in the last few years. The principle is followed of reducing the number of elective administrative officers and of putting into separate hands the power to appropriate and the power to spend money, and to concentrate power and responsibility in as few hands as possible. The commission proposed that the borough presidents, of which there are five, shall cease to have administrative functions and shall devote their entire time to the financial work on the Board of Estimate and Apportionment. The administrative work is to be given to the heads of departments, responsible to the Mayor and to bureaus, some of which are to be under the Board of Estimate and Apportionment and some under the various departments. The Board of Aldermen is to be supplanted by a council of thirty-nine members to serve without pay. Perhaps the most radical feature proposed is the abolition of the street cleaning department and the placing of the work of that department, as well as the work of repairing the streets, care of sewers and the like, which has been under the charge of the borough presidents, under a newly created department of street control. The powers of the Council are in many respects to be more limited than those possessed by the Board of Aldermen, although in some respects they are greater. The power to grant franchises is to rest exclusively in the hands of the Board of Estimate and Apportionment, and the Council is to have extended ordinance-making authority. The keeping of the State accounts is greatly simplified. The office of coroner is abolished and many minor changes are made, among them the creation of a uniformed Superintendent of Police subject to removal by the Police Commissioner. Certain provisions of the proposed charter met with severe criticism, especially those relating to the abolition of the Board of Aldermen. No action was taken during the year toward its acceptance or rejection. See MUNICIPAL GOVERNMENT.

The committee appointed in 1908 by Governor Hughes to inquire into Wall Street methods made its report on June 16. A discussion of this report will be found in the article EXCHANGES. On March 23, Governor Hughes dismissed the charge brought in 1908 against District Attorney William Travers Jerome for malfeasance in office and neglect of duty. The Governor based his decision entirely on the report and recommendations of Judge Richard L. Hand, whom he had designated to take testimony in the case. Commissioner Hand presented his report in the latter part of 1908. He declared that he found the charges not sustained in any particular. Governor Hughes agreed with this report that nothing was found to warrant sustaining the charges.

A new building code for the city, prepared by engineers and architects, was passed on July 24 by the Board of Aldermen by a majority vote of one. The code was, however, vetoed by Mayor McClellan. See CONCRETE.

Perhaps the most sensational incident in the history of the city during the year was the removal of Police Commissioner Bingham by Mayor McClellan on July 1. The action of

the Mayor was based directly on Commissioner Bingham's refusal to dismiss two of his subordinates in office at the request of the Mayor. The disagreement arose originally, however, over the action of the Commissioner in refusing to remove from the Rogues' Gallery the picture of a boy who was declared to have never been indicted for crime, but who had several times been arrested by the police and discharged. Commissioner Bingham insisted that the retention of the picture in the gallery was justified, while Mayor McClellan, after a careful hearing, declared that it was not. In the course of the hearing it was charged by the Mayor that the subordinates of the Commissioner referred to above had made attempts to discredit Justice Gaynor, through whose efforts the original demand for the removal of the picture was made. The Mayor appointed William F. Baker, previously First Deputy, Commissioner of Police to succeed General Bingham.

In September Louis F. Haffen, president of the Borough of the Bronx, was removed from office by Governor Hughes for official misconduct and neglect of duty. This action was the result of an investigation into the administration of Mr. Haffen undertaken by the Commissioners of Accounts during the year. Among the charges which Governor Hughes held to be substantiated were waste of public funds by the loading of payrolls, political jobbery in the purchase of granite for the borough courthouse, the continuance in this as a public architect a politician without professional qualifications for such work, and the acquisition by the city at a cost of \$240,000 for use as a bathing beach, of the shore property on which the assessed valuation was \$43,000, and which was situated at the mouth of a great sewer. Mr. Haffen had been borough president since the first election of the newly created Greater New York and for many years had been a strong political power in the Borough of the Bronx.

The election on November 3 for municipal officers was one of the most closely contested in the history of the city. Opponents of Tammany Hall took as the basis of their campaign the extravagance and waste in the city departments under Tammany rule and the general incompetence of the Tammany officials. A coalition was formed between a number of independent organizations and the regular Republican party. Otto T. Bannard, a banker and also well known in municipal affairs, was nominated for Mayor. The nominations for other officers were made from the regular Republican organization and from the independent organizations. They were, in general, men of higher character than are usually nominated for office in New York City. Tammany nominated for Mayor Justice William J. Gaynor of the Borough of Brooklyn. He had for many years bitterly opposed nearly everything for which Tammany Hall has stood, but that organization was obliged to find for its candidate a man who could draw votes from all elements of the Democratic party, and by this action the Democratic organizations of Manhattan and Brooklyn were brought into alliance. Justice Gaynor had been on the bench of the Supreme Court for fifteen years. Through his efforts, as noted above, was brought about the removal of Police Commissioner Bingham. He had long been notable for his opposition to many of the measures advocated and carried out by the Police Department. By developments unexpected

by the Democrats, William Randolph Hearst was nominated in October as candidate for Mayor of the Civic Alliance. This nomination was thought by many to be a shrewd move on the part of the leaders of the Republican and Independent organizations to draw votes from Justice Gaynor. Mr. Bannard made a strong and dignified campaign and showed great ability as a speaker. The campaign in general was one of great bitterness; Justice Gaynor was assailed in severe terms by his opponents and he retorted in kind. The result of the election was in general a surprise. Justice Gaynor was elected by a vote of 250,378 as compared with 177,304 for Mr. Bannard and 154,187 for Mr. Hearst. With this exception, the entire Republican-Fusion ticket was elected, including comptroller, all the borough presidents and the president of the Board of Aldermen. Majorities were cast for this ticket in all the boroughs and the candidates were elected by substantial majorities.

The city budget for 1910 amounted to \$163,049,480, an apparent increase over the budget of 1909 of about \$6,500,000. The increase was in part made up for by new items. The entire net increase was about 2.66 per cent.

On July 18 the lower tubes of the McAdoo system of tunnels connecting New Jersey with New York were opened by appropriate ceremonies in which officials of New York and New Jersey took part. In these tunnels trains will carry passengers to and from New York in less than half the time formerly required by the ferry boats (see TUNNELS). During the year the new Queensborough Bridge was formally opened and the Manhattan Bridge was nearly brought to completion (see BRIDGES). The Pennsylvania tunnels across the North and East rivers were completed and the Pennsylvania Station was finished as to the exterior. The great works undertaken by the Pennsylvania Railroad in Long Island City went forward steadily during the year and preparations were made to run trains through the tunnels on April 1, 1910.

There were no great disasters or any fires of the first magnitude in the city during the year.

For accounts of the Hudson-Fulton, Lake Champlain, and other like celebrations in the State in 1909, see CENTENARIES AND ANNIVERSARIES.

STATE OFFICERS: Governor, Charles E. Hughes; Lieutenant-Governor, Horace White; Secretary to the Governor, Robert H. Fuller; Secretary of State, Samuel S. Koenig; Comptroller, Clark Williams; State Treasurer, Thomas B. Dunn; Attorney-General, Edward R. O'Malley; State Engineer and Surveyor, Frank M. Williams; Commissioner of Education, Andrew S. Draper; Superintendent of Insurance, William H. Hotchkiss; Superintendent of Banking Department, Orion H. Cheney; Superintendent of State Prisons, Cornelius V. Collins; Superintendent of Public Works, Frederick C. Stevens; President, State Commission in Lunacy, Albert Warren Ferris; Public Service Commission, Chairman First Division, William R. Willcox; Chairman Second Division, Frank W. Stevens.

NEW YORK, COLLEGE OF THE CITY OF. An institution of higher learning in New York City founded in 1847. The attendance in 1909 was 3736 and the instructors numbered 232. About one-eighth of the students are of college

grade. The library contained in 1909, 39,400 volumes. The college is a part of the educational system of New York City and is supported by appropriations from the city. In 1908 the new buildings of the University on Washington Heights were dedicated. These buildings were constructed for the college by the city. The president is John H. Finley.

NEW YORK ACADEMY OF SCIENCES.

A learned society incorporated in 1818 as the Lyceum of Natural History in the City of New York. In 1876 the change was made to the present name. The Society was empowered by legislative enactment in 1902 to obtain funds to erect a building for scientific uses. Annual meetings are held in December of each year. The Academy has in its keeping the Esther Hermann Building Fund and the John Strong Newberry Fund for the encouragement of scientific research. The Academy's library is at the Museum of Natural History and is free to the public. The membership is about 450. The president is Charles F. Fox, the recording secretary, E. Otis Hovey, and the corresponding secretary, Henry E. Crampton.

NEW YORK BARGE CANAL. See CANALS.

NEW YORK PUBLIC LIBRARY. A public institution founded in 1895 by the consolidation of the Astor Library, the Lenox Library, and the Tilden Trust. The library includes forty branches in different parts of the city, which form its circulation department. Among the buildings occupied by these branches are thirty-two erected from the Carnegie Fund. Four of these were added during 1909, all in the Borough of Manhattan. Among the features of the branch libraries are roof reading rooms, which in the last few years have become a feature of four of the branches situated in the more crowded portions of the city. In the branches of the library there were circulated during the year 7,013,649 volumes, an increase of 509,247 over 1908. In the reference branches, which are in the main library building, the readers and visitors during 1909 numbered 265,912. The total number of volumes available for readers in 1909 was 799,854, with 295,078 pamphlets in the Reference Department, while in the Circulation Department there were 755,408 volumes, making an aggregate of 1,844,338 pieces in the whole library. Progress on the new central building on Fifth Avenue and 42nd Street continued during the year. The greater part of the work has been completed. In 1909 the library lost one of its most useful officers, John Stewart Kennedy (q. v.), second vice-president. The library is to receive from his estate an amount estimated at not less than \$2,250,000. Arthur E. Bostwick, chief of the Circulation Department since 1901, resigned on October 1, 1909, to become librarian of the St. Louis Public Library, and Benjamin Adams was appointed in his place. The director is John S. Billings.

NEW YORK SCHOOL OF PHILANTHROPY. See CHARITY ORGANIZATION.

NEW YORK UNIVERSITY. An institution of higher learning in New York City, founded in 1830. The total enrollment in 1909 was 4000 students. The faculty numbered 251. The University includes colleges of arts, law, commerce, medicine, pedagogy, graduate, applied science, summer school and a women's law class. The College of Arts is situated on Uni-

versity Heights, the Medical College at First Avenue between 25th and 26th streets and the other colleges in the University building at Washington Square, the original site of the University. Among the changes in the faculty in 1909 was the resignation of Professor J. G. Stevenson, professor of geology, and the appointment of Professor Joseph Edmund Woodman, Sc. D., as his successor. Professor Herman Harrell Horne, Ph. D., was appointed professor of the history of education and history of philosophy, to succeed Professor J. P. Gordy, deceased. The University received in gifts during the year \$25,000. It was also one of the beneficiaries of the bequest made by John Stewart Kennedy (q. v.). This bequest will amount to from \$750,000 to \$1,000,000. It was announced by Chancellor McCracken that this sum would be used to extinguish the debt of the University. There were about 98,000 volumes in the library. The productive funds of the University amount to about \$1,200,000 and the annual income to about \$365,000. The chancellor in 1909 was H. M. McCracken.

NEW YORK ZOOLOGICAL SOCIETY. A private scientific society organized for the purpose of establishing a zoological park for the preservation of American animals in New York City. The Society, on March 24, 1897, entered into a contract with the city of New York to establish and maintain a zoological park in a portion of the south end of Bronx Park, consisting of 264 acres of land which comprised open glades, forest lands and lakes. This area constitutes the New York Zoological Park. In area and in the elaborateness of its buildings, it is without doubt the largest and most highly developed zoological park in the world. The collections maintained belong to the Society. They comprised on July 15, 1909, 1146 species and 5528 specimens of mammals, birds and reptiles. The attendance at the park in 1909 was 1,614,953. The total attendance from 1899 to 1909 inclusive was 10,913,530. The Society also manages and controls the New York Aquarium at the Battery, and through its efforts has developed the largest and most complete aquarium in the world. It is the only institution of its kind that attempts to maintain in a temperate zone tropical collections by means of heated sea water, which is brought in from the open ocean, filtrated, aerated and heated in a large receiving tank. The attendance at the aquarium during 1909 was 3,803,501. The Society has taken an active part in the protection of American animals and especially in the preservation of the American bison, of which it maintains at its park an excellent herd. The membership at the end of 1909 was 1764. The president of the executive committee of the Society is Professor Henry Fairfield Osborn, and the director of the Park, William T. Hornaday.

NEW ZEALAND, DOMINION OF. A self-governing dependency of Great Britain; a group of islands in the South Pacific, including the North and South (the largest two) islands, Steward, and some small outlying islands. Capital, Wellington.

AREA AND POPULATION. Total area, 104,751 square miles (North, 44,468; South, 58,525; Stewart, 665). Up to March, 1908, 26,462,809 acres had been alienated. Population (1906), 936,309 (North, 476,732; South, 411,340; Stewart 304), including 47,731 Maories, 3938 half-casts, and 2570 Chinese; estimated, June

30, 1909, 1,029,417. The number of marriages (1908) was 8339; births, 25,940; deaths, 9043. The population of the chief towns with their suburbs was estimated in 1909 as follows: Wellington, 73,697; Auckland, 93,544; Dunedin, 61,279; Christchurch, 76,709; Invercargill, 13,700.

EDUCATION, ETC. Primary education is free, secular, and compulsory. There were (December, 1908) 1998 public elementary schools, with 3989 teachers and 147,428 pupils; 309 private schools, with 18,367 pupils; and 97 village schools for the Maoris. There are 331 endowed colleges and grammar schools. The University of New Zealand confers degrees.

The State supports no creed. The Protestants numbered (1906) 719,087; Roman and other Catholics, 127,227; Jews, 1867; Pagans, 1452; others or unclassified, 24,325.

PRODUCTION. In 1906, 13.32 per cent. of the population were classed as agricultural, pastoral, and mineral producers, 13.99 per cent. industrial; 9.04 per cent. commercial. Total area (1909) of land under crops or broken for crops, 1,890,630 acres; under sown grasses, 13,623,528. About 20,000,000 acres are under forest. Area under wheat (1907-8), 193,031 acres, yield 5,567,139 bushels; barley, 36,177 and 1,163,406; corn, 8880 and 503,301; potatoes, 27,035 and 142,999. Live-stock (1908): 1,816,299 cattle, 20,983,772 sheep, 1,352,832 horses, 241,128 swine. Wool clip (1906), 175,752,317 pounds. The output of coal for the year 1908 was 1,860,975 tons. The aggregate production of the important minerals to the end of 1907, the aggregate values, and the value of the output for the year, are given below:

	Aggregate production	Aggregate value	Value for 1907
Gold.....	18,218,680 ozs.	£71,528,978	£2,027,490
Coal.....	25,247,542 tons	13,485,259	965,766
Silver.....	9,439,396 ozs.	1,090,751	169,484
Copper.....	1,477 tons	18,825	595
Iron.....	3 tons	281	101
Other.....		14,398,994	612,399
Total.....		£100,523,086	£3,775,835

The manufactories numbered 4186 in 1906, with 56,359 employees, and a collective output valued at £23,755,132. The principal were meat freezing and preserving plants, tanneries, wool scouring, etc., establishments, saw and grist mills, butter and cheese factories, iron and brass works.

COMMERCE. The imports and exports for 1908 were valued at £17,471,284 and £16,317,494 respectively, (wool £5,332,781; frozen meat, £3,188,515; gold, £2,004,799; butter and cheese, £1,954,601), against £17,302,861 and £20,068,957 for 1907. The Board of Trade returns give the following list of articles of trade with Great Britain in 1908:

	Imports
Iron.....	£1,341,567
Cottons.....	858,348
Woolens.....	611,608
Ships.....	582,251
Apparel.....	477,405
Machinery.....	459,490
Leather.....	260,723
Spirits.....	239,473
Paper.....	189,204
Various.....	680,592
Total.....	£8,767,003

	Exports
Wool.....	£5,941,765
Mutton.....	3,452,584
Butter.....	1,250,211
Cheese.....	801,131
Skins.....	596,189
Tallow, etc.....	590,437
Beef (fresh).....	541,600
Kauri gum.....	419,415
Hemp.....	410,535
Total.....	£14,664,331

Other principal countries of origin and destination are the Australian States, the United States, Pacific Islands, India, and Ceylon.

COMMUNICATIONS. In March, 1909, there were 2674 miles of government and 29 miles of private railroads in operation; 10,404 miles of telegraph lines (wires, 32,564 miles); number of post-offices, 2133. Exclusive of coasting vessels, the total number of vessels entered in 1908 was 658 of 1,361,647 tons; cleared, 656 of 1,331,305 tons.

FINANCE. The total revenue and expenditure for the fiscal year 1909 were £9,001,185 and £8,785,513, against £9,063,989 and £8,213,965 for the preceding year. The expenditure from loans, including moneys spent under the Land for Settlements acts, amounted in 1907-8 to £3,318,650; in 1908-9, to £4,294,727. The gross public debt stood, March 31, 1909, at £70,938,534; accrued sinking fund, £3,156,989. There were (December, 1907) five banks of issue in operation, with total average liabilities £25,334,348, assets £26,584,239; 568 postal and other savings banks, with 364,422 depositors and £12,825,063 deposits at end of year.

GOVERNMENT. The Dominion is administered by a governor (1909, Lord Plunkett), aided by a responsible ministry, and a legislative council appointed by the Governor for seven years (45 members). The House of Representatives has 80 members (4 Maoris) elected by the popular vote of both sexes. The government of the Cook Islands, annexed in 1901, is administered locally, under the direction of New Zealand.

HISTORY. In January there was a serious labor dispute between the miners on the one hand, and the mine owners and insurance companies on the other, on the question of insurance without medical examination. Insurance was required by Parliament. The insurance companies and mine owners insisted upon medical examination, but the men refused. Even the Government Insurance Department at first refused the risk on pneumoconiosis without examination, but on January 11 it agreed to assume it and finally, toward the close of the month, the difficulties were adjusted and the Minister of Mines announced that the trouble was at an end. The numbers of the unemployed were considerable and many were emigrating to Australia. A small amount was available in 1909 for relief work and in the summer the Minister of Finance proposed a measure for insurance against unemployment on the model of the Churchill scheme in Great Britain. (See OLD AGE PENSIONS). For relief work the government had been spending £2,400,000 and was now spending only £1,400,000. It was estimated that 130,000 workmen were dependent upon the government works, which were now being reduced. Between April and November, 1908, 450,000

acres were selected for settlement. The policy of promoting desirable immigration, that is to say, the immigration of farmers, domestic servants and farm hands was again proposed by the Minister of Immigration. To carry on public works, promote the settlement policy and make advances to settlers, a loan was necessary. In October, the Premier, Sir Joseph Ward, announced that a loan of one million pounds had been obtained for these purposes and later in the month it was given out that the government would introduce measures for a State-Guaranteed Advances Department for the purpose of advancing money to settlers, working men, local bodies and mining companies. As to the government's railway policy, the Premier announced in October that railway building would henceforth not be undertaken if it was not likely to pay, except on condition that the people guaranteed earnings up to three per cent. Early in May, the Premier declared that the finances were in good condition, showing a surplus of £184,000 and a reduction of the floating debt. As to the *Dreadnought* fund, he said he would propose a plan whereby the cost should be met within the present generation. Public sentiment was strongly in favor of the *Dreadnought* gift, which was approved by both houses in June. At a meeting of the Auckland Brewers' and Licensed Victuallers' Association, it was decided to abolish the practice of employing barmaids and of keeping private bars and to raise the age of minors to whom liquor could be sold, from eighteen to twenty years. This association represented the entire wholesale trade and nearly all the retail trade. The decision arose from a poll on the question of Prohibition or reducing the facilities for getting liquor, which resulted in a large "moderate" vote. As a result of the liquor option vote, 107 hotels lost their license on June 30. It was decided that the Premier should attend the Imperial Defense Conference. There was some opposition to the defense movement, especially to compulsory military training, but it came from a small minority, mainly Socialists. The budget was presented on November 10. For the past year the revenues were £9,001,185 and the expenditures £8,785,513. For the construction of the promised *Dreadnought*, a loan of not more than £2,000,000 at 3½ per cent. was proposed. The government's scheme for the reconstruction of the military was based on the decisions of the Defense Conference. Its chief features were as follows: Elementary progressive training between the years of twelve and eighteen; two years compulsory training between eighteen and twenty-one, including drill on certain fixed days and two weeks of camp duty; the maintenance of a volunteer force of 20,000. The cost of the new system was estimated at £352,000. An increase in the death duties was proposed and the government was said to be considering an increase in the income tax and the tax on bank note issues. For the coming year the revenue was estimated at £9,020,000 and the expenditure at £9,015,078. On the night of February 12, the steamship *Penguin* of the New Zealand Steamship Company's line, bound from Picton to Wellington, ran aground off Cape Terawhati in Cook's Straits. The crew and passengers, who numbered about a hundred, embarked in small boats and rafts, but only twenty-six reached the shore. The volcano

Agauruhoe was in eruption in the spring, throwing ashes and debris to a greater height than ever before, estimated at eight thousand feet. Some disturbances took place in the Cook group of islands early in the year and in March it was reported that a British warship had been sent to the seat of the disorder and that the leader and others implicated had been sentenced to imprisonment. See GREAT BRITAIN.

NICARAGUA. A Central American republic between Honduras and Costa Rica. The capital is Managua.

AREA AND POPULATION. The area is stated at 49,552 square miles. The estimated population is about 600,000, mainly Indians and mestizos. There are some mulattoes and negroes, but persons of unmixed white race are few in number. The principal cities, with estimated population, are: León, 63,000; Managua, 35,000; Granada, 25,000; Matagalpa, 16,000; Masaya, and Bluefields, 15,000 each; Chinandega, 12,700. There are reported 356 elementary schools and 10 so-called colleges. The former universities of León and Granada are now consolidated. Roman Catholicism is the prevailing form of religion.

INDUSTRIES. Agriculture is the principal industry, and the leading crops are coffee and bananas. In recent years the cultivated area has been extending, and this development would doubtless proceed more rapidly but for the scarcity of labor. Various metal and minerals occur, including gold, silver, copper, precious stones, coal, and petroleum, but the mining industry is largely restricted to gold. There are vast forests containing rubber trees, dye woods, medicinal plants, and valuable cabinet woods, including cedar and mahogany. The coffee yield for the agricultural year 1908 was about 14,000,000 pounds, and the estimate for 1909 was 16,800,000 pounds. Nicaraguan coffee is of superior quality. In Matagalpa and Jinotega the cultivation is carried on by colonies of Americans and Germans. Banana culture, especially in the Bluefields region, is increasing, the annual production amounting to about 2,000,000 bunches. Sugar, tobacco, cacao, and rubber are important products. The live-stock industry has reached considerable proportions, the estimated number of cattle being 1,200,000. There are over 500 registered mines, of which 494 are gold producing. The annual gold output amounts to about \$1,000,000.

COMMERCE. In 1908 imports were valued at about \$3,452,000, and exports, about \$2,881,000. The United States has first place in both branches of trade. According to American statistics, in 1908 Nicaragua received from the United States shipments valued at \$1,297,163, and sent thither goods valued at \$1,034,131. The banana export from Bluefields to the United States amounted to 1,298,000 bunches, worth \$531,133. In 1906, the latest year for which full commercial details are available, the imports and exports were valued at \$3,408,830 and \$4,231,048 respectively. Of these amounts \$1,914,961 and \$2,492,961 respectively were credited to the United States; to Great Britain, \$776,133 and \$452,142; Germany, \$400,389 and \$458,718; France, \$193,661 and \$480,502. The chief exports in 1906 were: Coffee, 19,378,216 pounds, valued at \$1,375,679; bananas, 1,401,595 bunches, \$700,069; gold bullion and amalgam, \$870,969; rubber, \$385,472; mahogany, \$284,320.

COMMUNICATIONS. There are about 200 miles of railway. The National Railway, 171 miles, is operated in connection with steamers on the lakes. Since 1903 it has been leased to a company, and notable improvements have been made. There are about 20 miles of privately owned railway on the Atlantic coast. Other lines are projected. From San Miguelito, on Lake Nicaragua, a line is under construction to Monkey Point, 116 miles distant, on the Caribbean Sea. A line is projected from the Pacific port of San Juan del Sur to Lake Nicaragua. There are 135 post-offices and about 1600 miles of telegraph line, with over 3100 miles of wire.

FINANCE. Reported revenue and expenditure, in paper pesos of about 16 cents each, were 12,065,115 and 10,556,450 respectively in 1906, and 13,173,890 and 15,832,742 respectively in 1907. At the beginning of 1909, the external debt amounted to about £463,000. In May of that year the government obtained a foreign loan of £1,250,000, issuing 6 per cent. gold bonds, part of the proceeds of which were to pay off the English loan of 1886 (about £245,000) and the American loan of 1904 (about \$1,000,000). The sum of £430,000 was to be set aside for the construction of the railway from San Miguelito to Monkey Point. The internal debt in 1909 amounted to about \$5,128,000.

GOVERNMENT. Under the present constitution, dating from March 30, 1905, the executive authority is vested in a president, who is elected by direct vote for a term of six years and is assisted by a cabinet of five ministers, responsible both to himself and to the Assembly. The legislative power devolves upon the National Assembly (unicameral), whose members are elected for six years. The President in 1909 (for the term of 1906-12) was José Santos Zelaya. On December 16 of that year he resigned. Zelaya had served as chief executive for the three four-year terms 1894-1906 and since 1906.

HISTORY. President Zelaya had long been a disturbing factor in Central American politics, owing to his aggressive policy toward his neighbors, and had caused indignation among his own people by his concessions and monopolies. Early in the year the friction between him and President Cabrera of Guatemala for a time threatened war. Difficulty arose with the United States in regard to the settlement of a claim of certain American citizens, and on March 17 the United States demanded its submission to arbitration. About the same time three American cruisers were sent to Nicaraguan waters. The claim was referred to arbitration in May. There were reports of revolutionary risings during the summer. In October the revolt assumed formidable dimensions under General Juan J. Estrada, who in the early part of that month was declared provisional President. The Atlantic coast towns surrendered to the Revolutionists. An engagement took place on the San Juan River October 24, resulting in a loss of 100 killed and 400 wounded to the Zelayans. The latter, however, defeated the Revolutionists on November 2. In an engagement on November 4, both sides claimed the victory. On November 8 the Zelayans fell into an ambush, losing 100 killed and wounded. On November 30, 1000 of the Zelayans were attacked by the Revolutionists and defeated with a loss of 80 killed. The cause of Estrada rapidly strengthened and he was proclaimed provisional President of the whole re-

public. The report (on November 18) of the shooting of two American citizens, Groce and Cannon, by the order of President Zelaya, led to a vigorous declaration by Secretary Knox, on November 22, that the government would demand reparation. On December 1, Secretary Knox recognized the Estrada government and dismissed Zelaya's representative at Washington, informing him that the United States would hold those who had ordered the execution of Groce and Cannon personally responsible. The danger of serious difficulties between the two countries was averted by the resignation of President Zelaya on December 16. See the article UNITED STATES, paragraph on *Foreign Affairs.*

NICHOLS, ERNEST FOX. An American educator, inaugurated October, 1909, president of Dartmouth College. He was born at Leavenworth, Kansas, in 1869, and graduated from the Kansas Agricultural College in 1888 and from Cornell University as Master of Science in 1893, and as Doctor of Science in 1897. He carried on graduate studies in physics at Cornell University, 1889-92, University of Berlin, 1894-6, and at Cambridge University, 1904-5. He was appointed Fellow in Physics at Cornell University in 1891-2, and in 1892 was chosen professor of physics at Colgate University, serving in that position until 1898. In the latter year he was called to the same position at Dartmouth College, where he served until 1903. From that year until 1908 he was professor of experimental physics at Columbia University. He was given the Rumford medal by the American Academy of Political and Social Science in 1905. He has contributed papers to various scientific journals, especially on radiation.

NIGER, MILITARY TERRITORY OF THE. A French territory of French West Africa (q. v.), divided into two districts (Timbuktu and Zinder). Area, 534,124 square miles; population unknown. Each district is under a lieutenant-colonel responsible to the colonel of the territory. The territory is administered under the authority of the Lieutenant-Governor of Upper-Senegal-Niger (q. v.), and its budget forms an annex to the budget of that colony.

NILE BRIDGES. See BRIDGES.

NITROGEN. See CHEMISTRY, INDUSTRIAL.

NITROGEN COMPOUND. See FERTILIZERS.

NITROGEN OF SODA. See FERTILIZERS.

NOAILLES, EMMANUEL, Marquis de. A French diplomat, died February 16, 1909. He was born in 1830, the son of Duke Paul de Noailles. His early life was spent in study, but on the declaration of the Republic he entered the diplomatic service. He was appointed Minister to the United States in 1872, but was transferred in the following year to Italy, where he served until 1882. From 1882 to 1886 he represented France in Turkey, and from 1896 to 1902 in Germany.

NOBEL PRIZES. A system of awards established from a fund of \$8,400,000 bequeathed by Dr. Alfred Bernhard Nobel in 1896 for the purpose of awarding annual prizes to "those persons who shall have contributed most materially to the benefit of mankind" in the year immediately preceding. Prizes are distributed in accordance with a statute signed by King Oscar of Sweden January 29, 1900. The value of the prize now amounts to about \$38,000,



Copyright, 1909, by Harris & Ewing

DR. JOSÉ MADRIZ
Elected President in 1909

NICARAGUA



Courtesy of the "Review of Reviews"

JOSÉ SANTOS ZELAYA
President, resigning in 1909

a considerable portion of the income being absorbed in the administrative expenses and scientific investigations of the committees. The stipulation that the awards should be for some achievement of the preceding year has been, to a large extent, disregarded, as in many cases the life work of the recipients had been accomplished and its value recognized by the world long before the establishment of the foundation. The prizes in science and literature are given at Stockholm, and the prize for peace at Christiania, on the anniversary of the death of the founder, on December 10, from nominations submitted before February 1, preceding. The right to make nominations is bestowed upon members of the Swedish Academies and of corresponding academies of other countries, professors holding proper chairs in Scandinavian and certain foreign universities, previous recipients of Nobel prizes and other persons of distinction. Notices of those who received the prizes in 1909 are given in the table below:

THE RECIPIENTS OF THE NOBEL PRIZES

Name	Year	Nationality
Physics		
Wilhelm Konrad Röntgen....	1901	German
H. A. Lorentz.....	1902	Dutch
P. Zeeman.....	1902	
Henri Becquerel.....	1903	French
Pierre Curie.....	1903	French
Madame Skłodowska Curie.....	1903	Polish
Lord Rayleigh.....	1904	English
Philipp von Lenard.....	1905	German
Joseph J. Thompson.....	1906	English
Albert A. Michelson.....	1907	American
Gabriel Lippman.....	1908	French
William Marconi.....	1909	Italian
Ferdinand K. Braun.....	1909	German
Chemistry		
Jakobus H. van't Hoff.....	1901	Dutch
Emil Fischer.....	1902	German
Svante Arrhenius.....	1903	Swedish
Sir William Ramsay.....	1904	English
Adolph von Baeyer.....	1905	German
Henri Moissan.....	1906	French
Edward Büchner.....	1907	German
Ernest Rutherford.....	1908	English
Wilhelm Ostwald.....	1909	German
Medicine		
Emil Behring.....	1901	German
Ronald Ross.....	1902	English
Niels R. Finsen.....	1903	Danish
Ivan Petrovitch Pavlov.....	1904	Russian
Robert Koch.....	1905	German
Camille Golgi.....	1906	Italian
Santiago Roman y Cajal.....	1906	Spanish
Charles Alphonse Laveran.....	1907	French
Paul Ehrlich.....	1908	German
Elie Metchnikoff.....	1908	Russian
Theodor Kocher.....	1909	Swiss
Literature		
Armand Sully-Prudhomme....	1901	French
Theodor Mommsen.....	1902	German
Björnstjerne Björnson.....	1903	Norwegian
Frédéric Mistral.....	1904	French
José Echegaray.....	1904	Spanish
Henryk Sienkiewicz.....	1905	Polish
Giosuè Carducci.....	1906	Italian
Rudyard Kipling.....	1907	English
Rudolph Eucken.....	1908	German
Selma Lagerlöf.....	1909	Swedish
Peace		
Henri Dunant.....	1901	Swiss
Frédéric Passy.....	1901	French
Elie Ducommun.....	1902	Swiss
Albert Gobat.....	1902	Swiss
William R. Cremer.....	1903	English
Institute of International Law	1904	International
Bertha von Suttner.....	1905	Austrian
Theodore Roosevelt.....	1906	American
Louis Renault.....	1907	French
Ernesto T. Moneta.....	1907	Italian
K. F. Arnoldson.....	1908	Swedish
M. F. Bajer.....	1908	French
d'Estournelles de Constant.....	1909	Danish
Auguste M. Beernaert.....	1909	Belgian

NOMINATION REFORM. See ELECTORAL REFORM.

NORTH CAROLINA. One of the South Atlantic Division of the United States. Its area is 52,426 square miles. The population in 1909, according to a Federal estimate made in that year, was 2,142,084.

MINERAL PRODUCTION. The value of the mineral products of the State in 1908 was \$2,145,947 as compared with a value of the products in 1907 of \$2,961,381. The most important of the products are those of clay, which were valued in 1908 at \$943,968, as compared with \$1,315,822 in 1907. Next in point of value is stone, \$800,177 in 1908, as compared with \$932,209 in 1907. Mica was produced in 1908 to the value of \$127,870, as compared with \$225,206 in 1907. The production of monazite and zircon is important. In 1908 the product was valued at \$37,244, as compared with the value of the product in 1907, \$54,870. Other products of considerable importance are talc, and soapstone, lime, mineral waters, and sand-lime brick.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 48,686,000 bushels, valued at \$41,383,000 from 2,898,000 acres; winter wheat, 5,415,000 bushels, valued at \$6,877,000 from 570,000 acres; oats, 3,234,000 bushels, valued at \$2,134,000 from 196,000 acres; rye, 122,000 bushels, valued at \$126,000 from 13,000 acres; buckwheat, 99,000 bushels, valued at \$79,000 from 5,000 acres; potatoes, 1,850,000 bushels, valued at \$1,498,000 from 25,000 acres; hay, 242,000 tons, valued at \$3,485,000 from 175,000 acres; tobacco, 144,000,000 pounds, valued at \$13,680,000 from 240,000 acres. In the acreage, production and value of tobacco North Carolina far surpasses any other State except Kentucky. The tobacco crop of 1909 was considerably larger than that of 1908, which was 134,000,000 pounds. The acreage decreased from 200,000 to 240,000 in 1909. The cotton crop in 1909 was estimated at 615,000 bales, as compared with 619,000 bales in 1908. The maximum of the cotton crop was 712,218 bales in 1904-5. The cultivation of rice has practically ceased in North Carolina and larger areas are being devoted to early gardening for northern markets. The number of farm animals in the State on January 1, 1909, was: Horses, 192,000; mules, 181,000; dairy cows, 297,000; other cattle, 449,000; sheep, 215,000; swine, 1,356,000. The wool clipped in 1909 was 633,600 pounds.

FISHERIES. The value of the products of the fisheries of the State for the year ending December 31, 1908, was \$1,776,020. Of these products the most important in point of value was shad, of which 3,942,300 pounds, valued at \$372,920, were taken. Next in point of value was oysters, of which there were taken 807,700 bushels, valued at \$235,940. Following in order of rank of value of the products were mullet, \$14,760; alewives, \$140,380; hard clams, \$81,790; crabs, \$34,340; Spanish mackerel, \$34,210; kingfish, \$27,710. Other important fish taken were black bass, bluefish, butterfish, croaker, mullet and perch. There were 4803 independent fishermen engaged in the fisheries of the State, and 4878 wage-earning fishermen were

employed. The number of vessels engaged was 290, valued at \$220,944.

EDUCATION. The latest figures available for public instruction in the State are those for 1908, when there was a total school population of 715,716. Of this number 483,915 were white, and 231,801 colored. The total enrollment in all schools in 1907 was 497,716. Of this number 346,575 were white and 151,141 colored. The total number of teachers employed was 10,550, of whom 7775 were white and 2775 colored. The average salary of all white teachers per month was \$35.34 and of colored teachers \$24.32.

FINANCE. The report of the State Treasurer for the biennial period of 1907-8 showed receipts for the fiscal year 1908 of \$2,886,439 and disbursements of \$2,605,594. The largest receipts are from taxes on insurance companies, from dividends of the North Carolina Railroad, from the railway property tax, from State prison earnings and from county taxes. The chief disbursements are for education, for the State prison, interest on debt, and for pensions.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State in 1909, with their population on November 30, 1909, are as follows: State Hospital for the Insane (white), Raleigh, 663; State Hospital for Insane (white), Morganton, 1166; State Hospital for Insane (colored), Goldsboro, 680; Dangerous Insane Department, wards for both races (penitentiary), 50; School for the Blind (white), Raleigh, 172; School for the Colored Blind and Deaf, Raleigh, 182; School for Deaf (white), Morganton, 239; Soldiers' Home (Confederate), 161; Oxford Orphanage for white children, 324; Oxford Orphanage for colored children, 150; Stonewall Jackson Training School (Reform School), Concord, 48; North Carolina Tuberculosis Sanatorium, Montrose, (opened for six months, 32 in charge, closed for extensive additions, was opened for patients at the close of the year); Epileptic Colony, State Hospital, Raleigh, was completed at the close of the year, but not opened for patients; State's Prison, Raleigh, prisoners distributed at prison, State Farm and railroad camps, 710. There are also a number of county camps where prisoners are retained to work the highways and do not go to the State's Prison, the counties having entire charge of them. The two orphanages at Oxford and the Training School are not entirely under State control. They receive a large part of the support from the State and there are directors representing the State on the board, but the Masons control the Oxford Orphanage for whites, the colored Baptists the colored orphanage, and a corporation of philanthropic persons the Training School.

POLITICS AND GOVERNMENT. On January 19, Lee Slater Overman was elected United States Senator to succeed himself. He received every Democratic vote in both Houses, having no opposition in his party. Spence B. Adams, the Republican State Chairman, received the Republican vote. As a result of the election held on May 26, 1908, which ratified the law passed at a special legislative session in 1908, Prohibition went into effect on January 1, 1909. The legislature passed on March 8 a measure providing for strict inspection of all illuminating oils offered for sale in the State. A child labor law introduced into the legislature

was killed by the action of that body on March 6.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: Acts were passed providing for the protection of forests, permitting the cultivation of oysters, and regulating the sale of food-stuffs and the packing and selling of fish. Provision was made for the appointment of inspectors of electric, gas and water metres. Seats for female employees were prescribed. Measures were passed prohibiting blacklisting in the State. It is forbidden to evade the exemption laws. The practice of optometry is regulated and provision is made for the free treatment of indigent persons having diphtheria.

OFFICERS: Governor, W. W. Kitchin; Lieutenant-Governor, W. C. Newland; Secretary of State, J. B. Grimes; Treasurer, B. R. Lacy; Auditor, B. F. Dixon; Attorney-General, T. W. Bickett; Superintendent of Education, J. Y. Joyner; Commissioner of Agriculture, W. A. Graham; Commissioner of Insurance, J. R. Young; Adjutant-General, J. F. Armfield—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Walter Clark, Dem.; Justices, George H. Brown, Dem.; William A. Hoke, Dem.; James S. Manning, Dem.; P. D. Walker, Dem.; Clerk, Thomas S. Kenan, Dem.

The State Legislature of 1909 was composed of 40 Democrats and 10 Republicans in the Senate, and 96 Democrats and 24 Republicans in the House. The State representatives in Congress will be found in the section *Congress of the article UNITED STATES.*

NORTH DAKOTA. One of the North Central Division of the United States. Its area is 70,837 square miles. The population in 1909, according to a Federal estimate made in that year, was 530,103.

MINERAL PRODUCTION. The mineral products of the State are not important. They include clay products, coal, natural gas and stone. Of these coal is the most important, the total production in 1908 being 320,742 short tons, valued at \$522,110. The total value of the mineral products of the State in 1908 was \$738,818, as compared with a value of the product in 1907 of \$875,180.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 6,045,000 bushels, valued at \$3,325,000 from 195,000 acres; spring wheat, 90,672,000 bushels, valued at \$83,501,000 from 6,625,000 acres; oats, 49,600,000 bushels, valued at \$16,368,000 from 1,550,000 acres; barley, 20,727,000 bushels valued at \$8,913,000 from 987,000 acres; rye, 478,000 bushels, valued at \$272,000 from 26,000 acres; flaxseed, 14,229,000 bushels, valued at \$22,340,000 from 1,530,000 acres; potatoes, 4,400,000 bushels, valued at \$1,980,000 from 40,000 acres; hay, 266,000 tons, valued at \$1,330,000 from 194,000 acres. In the production of spring wheat North Dakota is surpassed only by Minnesota. The crop of 1909 was greatly in excess of that of 1908, which was 68,428,000 bushels. The acreage also materially increased. In the production of barley this State is among the first. The crop of 1909 was slightly larger than that of 1908, which was 18,330,000 bushels. In the production of

flaxseed North Dakota by far surpassed any other State. The crop of 1909 was considerably larger than that of 1908, which was 13,770,000 bushels. The area devoted to flax has more than doubled in the last five years. The number of farm animals in the State on January 1, 1909, was as follows: Horses, 712,000; dairy cows, 247,000; other cattle, 616,000; sheep, 621,000; swine, 206,000. The estimated wool clipped in 1909 was 3,260,400 pounds.

EDUCATION. The enumeration of school children between the ages of six and twenty years in 1909 was 149,000. Of this number 135,000 were enrolled in the public schools, with an average daily attendance of 92,000. The number of men teachers was 1166 and of women 5198. The average monthly salary paid to teachers was \$49.75. The total expenditures during 1909 for educational purposes, including cost of common schools and institutions of higher learning, was \$4,200,000. The educational institutions of the State are prospering greatly, and the graded and high schools are increasing in efficiency, vocational education being given a permanent place in the course of study. The one educational interest which fails to move forward as rapidly as the others is the rural school, and the efforts of the school authorities are being directed to improvement. During 1909 provision has been made for increased supervision, and a vigorous campaign was made to meet the conditions of the rural school. The introduction of elementary agriculture into all the rural schools took place during the year.

FINANCE. The balance at the end of the fiscal year 1908 was \$582,905. The income for the fiscal year 1909 was \$4,588,010, while the expenditures were \$3,636,053, leaving a balance at the end of the fiscal year of \$1,494,862. The chief sources of revenue are general taxation and corporation taxes, and the chief disbursements are for legislative appropriation, State institutions, and general expenses incident to State government. The bonded debt at the end of the fiscal year was \$692,300.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the insane asylum at Jamestown, penitentiary at Bismarck, School for the Deaf at Devil's Lake, Reform School at Mandan, Institution for Feeble Minded at Grafton, Soldiers' Home at Lisbon, the Blind Asylum at Bathgate, and the Industrial School at Ellendale. A law of 1907 provided for the parole of certain classes of prisoners under suspended sentence.

POLITICS AND GOVERNMENT. Senator Martin N. Johnson, who was elected Senator as a result of the election in November, 1908, died October 21, 1909. Fountain L. Thompson was appointed his successor. Several important measures were passed at the legislative session of 1909, and these are noted in the paragraph below. On March 1 the Senate passed the House resolution granting a popular vote on the constitutional amendment to provide equal suffrage. See **ELECTORAL REFORM.**

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: An act was passed authorizing the issuance of bonds and warrants to secure seed grain for needy farmers. A public tuberculosis sanatorium was established. The capital of the State was fixed at Bismarck. The sale

of cigarettes to minors was prohibited, as well as the solicitation of orders for intoxicating liquors and advertisements of liquors. Measures were passed providing for the sanitation of hotels. Provisions were made for the regulation of child labor. A pure food law was enacted. Cities are authorized to fix the rates for gas and provide for a non-partisan judiciary and for a legislative reference department.

OFFICERS: Governor, John Burke; Lieutenant-Governor, R. S. Lewis; Secretary of State, Alfred Blaisdell; Treasurer, G. L. Bickford; Auditor, D. K. Brightbill; Attorney-General, Andrew Miller; Superintendent of Education, W. L. Stockwell; Adjutant-General, A. P. Peake; Commissioner of Agriculture, W. C. Gilbrath; Commissioner of Insurance, E. C. Cooper; Commissioner of Public Lands, Alex. Macdonald—all Republicans, except Burke, Dem.

JUDICIARY. Supreme Court: Chief Justice, David E. Morgan; Justices, Charles J. Fisk, B. F. Spalding, John Carmody, S. E. Ellsworth; Clerk, R. D. Hoskins—all Republicans, except Fisk and Carmody.

The State Legislature of 1909 was composed of 40 Republicans and 7 Democrats in the Senate, and 89 Republicans and 6 Democrats in the House. The State representatives in Congress will be found in the section *Congress of the article UNITED STATES.*

NORTHERN NIGERIA. A British protectorate in Western Africa. Area, 256,400 square miles; population, estimated (1907) at 7,164,751. The Fulani, the Hausas, and other prominent tribes are Mohammedans; in various parts of the country paganism prevails. Slave caravans still journey to Bornu, Zola, and Muri from German Adamawa, in spite of the efforts of the British government to suppress the trade. Mission schools only are maintained. The chief products are rubber, ground-nuts, shea butter, ivory, hides, live-stock, palm-oil and palm-kernels. Cotton and tobacco are grown. Salt and soda deposits exist; tin, iron, and silver ore are mined. The importation of spirits is prohibited. The trade is mostly by caravans, which make use of Kano as an emporium. A railway runs from Barijuko to Zungaru (22 miles). A light railway is under construction from Baro, on the Niger, to Kano (400 miles). This line will connect with the Southern Nigeria Railway. There are 2107 miles of telegraph lines. Revenue and expenditure (1907-8), £508,005 and £498,302, respectively. Imperial grant-in-aid (1907-8), £290,000; 1909-10, £273,000. Governor and Commander-in-Chief (1909), Sir H. Hesketh Bell, with headquarters at Zungaru.

HISTORY. On May 11 it was announced that a native police force, while making its way toward Gussoro under British officers, fell into an ambush and eleven of the men, one officer and a native chief were killed. A rising occurred at Kuta and a force was dispatched to the point on May 9. In July the M'yelem tribe attacked the British Assistant-Resident. The work on the Baro-Kano railway, though delayed by rains, continued actively, and early in the autumn the completion of the 145th mile was announced. Native labor was readily secured.

NORTHWESTERN UNIVERSITY. An institution of higher learning at Evanston, Ill.,

founded in 1851. The College of Liberal Arts, College of Engineering, School of Music, Evanston Academy, and the School of Oratory are at Evanston, twelve miles from Chicago. The Law School of Pharmacy, Dental School, and School of Commerce are in Chicago. The attendance in 1909 was 4808 and the faculty numbered 384. There were 127,905 volumes in the library. The College of Engineering was established in 1907 and the School of Commerce in 1908. New buildings for the Engineering Department and a new gymnasium were completed during the year. The protective funds of the University amounted in 1909 to \$3,013,616 and the total income was \$1,070,052. The receipts from benefactions during the year amounted to \$403,101. The president is Abram Winegardner Harris.

NORTON, CHARLES LEDYARD. An American journalist and author, who died December 15, 1909. He was born in Farmington, Conn., in 1837 and graduated from Yale College in 1859. He continued his studies at the Sheffield Scientific School until the outbreak of the Civil War, when he enlisted in the Seventh Regiment of the New York National Guard. He served throughout the war and was mustered out in 1866 as colonel of the Seventy-eighth Regiment of the United States colored troops. He acted for a year as manager of a cotton plantation in Southern Louisiana, but was forced by ill health to turn to literary pursuits. From 1868 to 1878 he edited the *Christian Union*, and was subsequently connected editorially with the *Domestic Monthly*, *Our Continent* and *Outing*. His published works include *Canoeing in Kanuckia* (with John Habberton, 1878); *A Handbook of Florida* (3d ed., 1892); *Political Americanisms* (1890); and *Jack Benson's Log* (1895).

NORWAY. A constitutional monarchy of northern Europe; capital, Christiania.

AREA AND POPULATION. The monarchy covers an area of 124,122 square miles. The population in 1900 was 2,240,032, and was estimated December 31, 1907, at 2,330,364. The total emigration in 1907 was 22,135; in 1908, 8497; and during the first six months of 1909 was estimated at 19,757—more than twice the number for the entire preceding year. There were, in 1907, 13,953 marriages, 60,722 births, and 32,789 deaths. Christiania had, in 1900, 227,626 inhabitants; Bergen, 72,251 (80,000 in 1905); Trondhjem, 38,180; Stavanger, 30,613.

EDUCATION. Primary education is compulsory. In 1905 the pupils in public elementary schools numbered 358,539; those in secondary schools, 16,227; in commercial and private schools, 4522; in normal schools, 955. The University of Christiania had, in 1907, 1557 students. The national church and the only one endowed by the state is the Evangelical Lutheran, with a clergy nominated by the King. All religions (except Jesuitism) are tolerated.

INDUSTRIES. The fisheries constitute one of the most important of Norway's industries. Some 85,000 men with 19,000 craft of various kinds and dimensions, are annually engaged in the Norwegian winter cod fisheries. The results of the cod fisheries of all Norway during the last three fishing years, ending the latter part of June in each year, were as follows:

	1907	1908	1909
Fish, pounds....	104,720,000	106,040,000	124,306,000
Steamed medicine oils, gal..	1,242,676	1,566,256	1,336,190
Raw livers, gal..	677,676	677,976	733,000

The Finmark fishery had, in 1909, one of the best seasons on record, the aggregate catch of cod amounting to 114,400,000 pounds. The canning of sardines is a rapidly increasing industry on the western coast. There are now about forty factories, employing several thousand men, women and children, and turning out during a good season 50,000,000 tins of from 20 to 44 fish each. In 1906, 14,150 persons were engaged in herring fisheries, and 4608 in mackerel fishery.

The total area under cultivation is estimated at 3724 square miles; under forests, 26,230 square miles. (See FORESTRY.) For its cereals Norway is mainly dependent on imports, and home production is declining. In 1907 the total wheat production was 200,000 bushels, against 303,000 bushels in 1906; oats, 1907, 6,000,000, against 9,297,000 in 1906. The census of livestock December 3, 1900, was as follows: Horses, 172,999; cattle, 950,201; sheep, 998,819; goats, 214,594; swine, 165,348; reindeer, 108,784.

The various mining establishments (about 50) gave employment in 1906 to 5347 persons, against 4500 in 1905. The total value of mineral products in 1906 was 9,848,000 kroner; of smelting products, 2,862,000 kroner. Silver (485,000 kroner in 1906), copper ore (2,314,000), pyrites (5,171,000), iron ore (1,043,000), feldspar (380,000), and apatite (174,000) are the chief mineral products. Of the smelting products in 1906 silver was valued at 500,000 kroner, copper at 2,182,000.

FOREIGN COMMERCE. The total imports of 1908 amounted to 376,129,000 kroner (1 krone = 26.8 cents) against 385,707,800 in 1907; the total exports, to 240,077,000 kroner, against 253,100,900 in 1907. The principal imports for home consumption and exports of domestic produce were (1908) as follows:

Imports		Kroner
Cereals		67,800,000
Textiles		38,200,000
Coal		31,100,000
Oils		27,700,000
Colonial products		26,300,000
Mineral products		24,700,000
Metal manufactures		22,200,000
Metals (raw)		16,400,000
Animal products		15,000,000
Hides and leather		13,900,000
Raw fibre		11,000,000
Exports		Kroner
Animals and animal products		72,600,000
Wooden manufactures		45,300,000
Timber		34,800,000
Minerals		25,000,000
Paper and products thereof		18,800,000
Hides and leather		9,500,000
Oils		7,900,000
Cereals		3,400,000
Metals		3,100,000
Textiles		1,500,000
Drugs and colors		300,000

Of vegetable oils the imports in 1908 were 10,211,020 kilos, against 9,122,870 kilos in 1907. Imports of flour in 1908 amounted to 56,251 long tons; of meal (chiefly rye) to 29,535 tons. Imports of bread-stuffs and packing-house prod-

ucts from Argentina are increasing on account of the direct steamship service now established between the two countries. Germany furnished (1908) imports to the value of 111,583,000 kroner, and received exports to the value of 37,482,000 kroner; Great Britain, 94,400,000 and 91,730,000; Sweden, 41,468,000 and 12,361,000; Denmark, 27,324,000 and 9,606,000; Russia and Finland, 26,914,000 and 6,868,000; United States, 18,104,000 and 6,162,000; Netherlands, 16,690,000 and 21,477,000.

COMMUNICATIONS. The total length of railways at the end of the fiscal year 1908 was 1605 miles, of which 1354 miles were owned by the state. The state lines had a capital of 199,700,000 kroner, and a gross income of 16,815,312, the net earnings being about 2½ per cent. on the capital; total expenditure, 11,871,741 kroner; goods carried, 3,908,363 metric tons; passengers, 9,696,102. Private companies owned 251 miles; capital invested, 7,205,000 kroner; total receipts, 3,230,747; expenditures, 2,295,057; goods carried, 1,100,858 metric tons; passengers, 1,402,237. Loss of life in collisions on all lines, 12. Great strides are being made in railway extension throughout the country. In 1909 King Haakon opened the Rjinkanbane, a short line intended mainly as a commercial outlet for the factory town of Notodden. Before the end of the year the short remaining piece of the Bergen and Christiania line (from Gulsvik to Roa) was expected to be open to traffic. The Dovrebane, another important line, crossing the Dovrefjeld and joining the Gudbrandsdal line (which at present goes only to Otta), is shortly to be begun. When this link between the Gudbrandsdal line and the already existing line to Stren is complete, it is expected that traffic will be diverted from the old line via the Osterdal. The new line is of the usual Continental width, while the old is narrow-gauge. The total length of telegraph and telephone lines and wires at the end of the fiscal year 1908 was 12,120 miles of line, 77,049 of wires. State telegraph offices (1907), 969; number of paid messages, 2,724,908. Receipts and expenditures, 1907-8, 4,543,485 and 3,196,127 kroner respectively. The total mercantile marine comprised, on January 1, 1908, 5773 sailing vessels, of 750,765 tons; steam, 2089, 819,436 tons: total, 7862 vessels, 1,570,201 tons.

FINANCE. The unit of value is the krone, worth 26.8 cents. The revenue for the year ending March 31, 1907, was 114,209,000 kroner; expenditure, 108,708,000. In accordance with Act of Constitution, June 8, 1907, the budget term is altered from April 1-March 31, to July 1-June 30; the transitional budget 1908-9 had to be granted for fifteen months. For 1907-8 the estimated revenue and expenditure balanced at 114,936,824 kroner; for 1908-9, at 135,625,000. The principal sources of revenue for 1908-9 were estimated as follows: Customs, 51,700,000 kroner; railways, 22,244,000; post-office, 9,300,000; income tax, 6,550,000; telegraphs, 5,906,000; excise on spirits, 5,750,000; on malt, 3,100,000; state property, 5,568,000; tamps, 1,838,000; judicial fees, 1,375,000; succession tax, 1,150,000; mines, 738,100; railway loan, 7,735,000. The principal estimated expenditures were: State railways (traffic), 19,344,000; army, 17,098,000; post-office, telegraph, etc., 15,761,000; church and education, 14,696,000; interest on debt, 14,686,000, amortisation

of debt, 5,480,000; justice, 10,399,000; navy, 6,467,000; finance and customs, 5,972,000; roads, canals, ports, etc., 5,649,000; interior, 4,944,000; ministries, 2,147,000; foreign affairs, 1,112,000; civil list, 947,000; mines, 813,000; Storting, 625,000. The national debt on March 31, 1908, stood at 328,401,345 kroner.

The "Norges Bank" at the end of 1907 showed assets, 110,541,020 kroner; liabilities, 87,963,861. The "Kongerige Norges Hypothekbank" had a capital of 20,000,000 kroner, a reserve fund of 1,000,000, and a delcredere fund of 220,000; the total bonds issued amounted to 159,086,680, and the loans on mortgage to 164,682,118. In addition to these two State banks there were at the end of 1907 92 private joint-stock banks reported, with a collective subscribed capital of 90,261,067 kroner and a paid-up capital of 41,008,160; reserve funds, 25,984,251; deposits and withdrawals during the year, 934,097,708 and 899,842,811 respectively; deposits at end of year, 372,702,422. The savings banks, chartered by royal permission and controlled by the Ministry of Finance, numbered at the end of 1907 460; depositors, 868,616; total deposits, 430,128,724 kroner.

NAVY. The effective navy in 1909 included: 4 armored coast-defense vessels, aggregating 14,720 tons; 2 protected small cruisers, 3500 tons; 4 gunboats; one destroyer; 36 torpedo boats. There were also several transports, schoolships, and obsolete gunboats. Two torpedo-boat destroyers and one submarine were building. The personnel is 2574 officers and men.

ARMY. The army is a national militia in which service is obligatory, certain fixed periods of service being demanded of each citizen. A reorganization of the army voted by the Chamber in 1909 provided for two laws, a regular or active army "linie" and a militia or "landvaern." The former was divided into 5 brigades, each with the three arms, unattached companies, and fortress artillery. It included 16 regiments of infantry, 3 regiments of light cavalry, 3 regiments of field artillery (27 batteries each with 4 rapid fire guns), 6 4-gun batteries of mountain artillery, 1 regiment of heavy artillery (8 batteries), 5 companies of telegraphers, 5 companies of sappers and miners, 3 battalions (14 companies) of engineers; 6 companies of sanitary troops, 6 companies of train, and 14 machine gun detachments. There is a military school and a war college in addition to schools for non-commissioned officers for the various brigades and separate arms. The organization is a skeleton one, which in time of war can be readily expanded, the regular army under such conditions having an effective total of 86,000 men, to which may be added the "landvaern" to bring the total up to 110,000 men. The actual establishment is maintained with a strength of about 1700 officers, 2700 non-commissioned officers and 18,000 men.

GOVERNMENT. Norway is a constitutional monarchy, the royal succession being in direct male line in the order of primogeniture. The King is the executive, acting through a council of state, consisting of a minister and at least seven councillors. The legislative power is vested in the representative Storting, assembling annually and divided into two houses, the Lagthing, comprising one-fourth of the members; and the Odelsting, three-fourths. Women were granted the franchise in 1907. The

present King, Haakon VII., was Prince Carl of Denmark, born August 3, 1872, and elected King of Norway November 18, 1905, by the Storthing. His marriage to Princess Maud, third daughter of Edward VII., of England, took place July 22, 1896. The Crown Prince, Olav, was born July 2, 1903. The Council (1909) was composed as follows: President of the Council, Minister of State, and Minister of Finance and Customs, Gunnar Knudsen; Foreign Affairs, W. Christophersen; Commerce, Navigation and Industry, Lars Abrahamsen; Army and Marine, Colonel A. G. Spoerck; Justice and Police, J. Castberg; Agriculture, L. K. Foosnaes; Public Works, N. C. Ihlen; Worship and Public Instruction, K. J. Hougen; Secretary of State, N. O. Hesselberg.

HISTORY

PARLIAMENT. The work of reorganizing the army, which was before the Storthing in 1908, was completed at the beginning of August, 1909. Its chief aim was to insure prompt mobilization by changing the distribution of the conscription districts and to organize the infantry battalions into regiments. The results were not satisfactory to the Minister of Defense, M. Lovzov, who, on the Storthing's completion of its work, resigned his post to take charge of the cavalry and was succeeded by Colonel Spoerck. (See preceding paragraph). The session of the Storthing was unusually long, extending into September. Among the measures passed, in addition to the defense plan above mentioned, were a modification of the election laws, fixing October as the month for holding elections, and imposing more stringent conditions on the permission to vote by writing in case of sickness or other cause necessitating absence from the polls; and a divorce law permitting the dissolution of marriage upon the demand of both husband and wife after a civil authority has attempted to mediate and permitting under certain conditions the dissolution upon the demand of either the husband or the wife. Other measures in which progress was made were the bills for the regulation of the concession of waterfalls and mines, the amendment of the industrial inspection law, and insurance against sickness. The first of these limited the concession of water power and mines, to foreigners, providing that they should revert to the State after periods ranging from 60 to 80 years, and that so far as possible Norwegian labor should be employed. The amendment of the industrial inspection law aimed to extend its application to the small shops and to provide for a woman inspector. The project for insurance against sickness applied only to temporary sickness, the maximum being 26 weeks, after which invalidism insurance would be necessary, though no measure of that nature was yet formulated. It is to be obligatory on all employees, and the cost is to be borne by the employees, the employers, and the state.

POLITICAL PARTIES. It was still too early to determine the effect of woman suffrage, introduced in 1907, on political parties, though it was generally believed that the Conservatives, (Right) and Socialists would be the gainers. The Conservatives held their congress at the beginning of May and adopted their programme. There was a division on the *Landsmaal* and liquor questions and a majority representing the Conservatives in the western departments se-

ceded. The Liberal Left's programme as set forth at its meeting in March differed little from that of the Conservatives and the two parties were united in the electoral campaign. The "consolidated" Left, the government party, held its congress at the end of June, but made little change in its programme. The Socialist programme, announced at their meeting during Easter, forbade any coöperation with other parties. Among its features were: Universal woman suffrage; the referendum; substitution of taxes on fortunes, incomes and inheritances for indirect taxes; the eight-hour day; old age pensions; state assumption of the cost of caring for the sick; and complete disarmament. The government was defeated in the general elections of October. The results were: Conservatives (Right) and Liberal Left, 63; Government Left, 47; Socialists, 11; Independents, 2. In the previous Storthing the respective strength was: Government Left, 59; Conservatives and Liberal Left, 54; Socialists, 10.

FOREIGN RELATIONS. An agreement was signed with France whereby the latter secured a reduction of the duty on imports on French wines into Norway and the fixing of the existing duty on French spirits as the maximum, and Norway secured in return the admission of Norwegian loans into the French *bourse*. For the Hague decision in the frontier dispute with Sweden, see SWEDEN, paragraphs on *History*. A European Conference was proposed to consider the status of Spitzbergen, but was postponed. A meeting between the Kaiser and the King of Norway occurred at Bergen on July 20. See also ARBITRATION, INTERNATIONAL.

NOVA SCOTIA. A maritime province of Canada. Area, 21,248 square miles. Population, in 1907, 457,574. Capital, Halifax, with 40,832 inhabitants in 1901 and about 50,000 in 1909. The executive authority rests with a lieutenant-governor, appointed by the Governor-General of Canada and acting through a responsible Executive Council. The legislature consists of two houses, the Legislative Council (21 appointed members) and the House of Assembly (38 elected members). The Lieutenant-Governor in 1909 was Duncan Cameron Fraser (appointed March, 1906). The Provincial Secretary (Premier) in 1909 was George W. Murray. For statistics and other details, see CANADA.

NUTRITION. See FOOD and NUTRITION.

NYASSALAND PROTECTORATE. A dependency of Great Britain, lying round the shores of Lake Nyassa, and including all British Nyassaland as well as the Shiré Highlands and the greater part of the Shiré River basin. Area, 43,608 square miles. Population (estimated 1908), 587 Europeans; 515 Asiatics; and about 947,168 natives, nearly all Mohammedans. Blantyre, with about 200 Europeans and 6000 natives, is the chief town, Zomba the government headquarters. Trade is mostly with Great Britain. Imports and exports (exclusive of transit) in 1907-8 were valued at £169,541 and £68,604 respectively; 1908-9 £140,916, and £122,644. Coffee (£16,253 in 1907-8), cotton (£13,999 in 1907-8), tobacco, strophanthus, beeswax, rubber, chillies and ground-nuts are the chief articles of production and export. Steamers ply the lake and the rivers. A railway (113 miles) connects Port Herald with Blantyre, and it is proposed to extend it to Lake Nyassa

via Zomba. Telegraph lines connect with the Cape, Chinde, Quilimane, and Ujiji. There are 24 post-offices. A hut tax is levied on the natives, which, with customs, tolls, licenses, etc., yielded (1906-7) £35,619; (1907-8) £36,605. Governor and Commander-in-Chief (1909), Sir Alfred Sharpe.

OATS. The growth of the oats crop in 1909, while at first not so promising, was in general very satisfactory and resulted in a record production. In the spring, floods, dry weather, and windstorms injured the crop to some extent locally, but the areas affected were not large enough to influence the total production very materially. The acreage was somewhat increased as a result of poor fields of winter wheat in certain localities which were plowed up and used for oats. As a rule other oat-producing countries of the world also secured satisfactory yields. The Russian Empire, which frequently produces more oats than the United States and did lead in the world's production in 1908, is estimated to have produced in 1909 a crop about equal in quantity to our own.

The oat crop of 1909 is the first in the history of the United States to exceed the billion bushel mark. As reported by the Department of Agriculture, the total production for 1909 was 1,007,353,000 bushels and the acreage 33,204,000 acres, which is also a record figure. The price of oats November 1, 1909, was 41 cents which, with the exception of 1907 and 1908, is the highest price for any year since 1890. The total value of this large crop at the high price is \$408,174,000, a sum which has never before been reached. As compared with the 5-year average this amount is greater by about 30 per cent. The total production is nearly 15 per cent. greater than the 5-year average. Only eleven States produced less than one million bushels. The acreage, yield and value of the crop in the principal oat-growing States of the Union in 1909, as reported by the United States Department of Agriculture, are given in the following table:

States	Acreage Acres	Production Bushels	Farm value Dec. 1, '09 Dollars
Illinois	4,346,000	159,064,000	60,444,000
Iowa	4,300,000	116,100,000	40,635,000
Minnesota	2,736,000	90,288,000	31,601,000
Wisconsin	2,280,000	79,800,000	31,122,000
Nebraska	2,473,000	61,825,000	21,639,000
Ohio	1,730,000	56,225,000	23,052,000
Indiana	1,820,000	55,510,000	21,649,000
North Dakota	1,550,000	49,600,000	16,368,000
South Dakota	1,450,000	43,500,000	14,790,000
Michigan	1,420,000	43,310,000	17,757,000
New York	1,325,000	37,365,000	18,309,000
Kansas	964,000	27,185,000	11,690,000
Pennsylvania	998,000	25,948,000	12,974,000
Missouri	690,000	18,630,000	8,011,000
Oklahoma	550,000	15,950,000	7,337,000
Montana	300,000	15,390,000	6,464,000
Texas	615,000	11,500,000	7,130,000
Oregon	288,000	10,886,000	5,661,000

All other States produced less than 10 million bushels. In average yield per acre the leading States ranked as follows: Montana 51.3 bushels, Washington 49 bushels, Utah 46.1 bushels, Idaho 44.5 bushels, and New Mexico and Nevada 40 bushels. The average yield per acre for the entire country was 30.3 bushels, which has often been exceeded.

The oats crop of the world for this year is estimated by the Hungarian Ministry of

Agriculture at 4,417,524,000 bushels, or an increase of 857,000,000 bushels over last year. Germany's yield is estimated at 590,000,000 bushels, the French yield at 329,243,000 bushels, and Canada's production at 269,944,000 bushels. In many European countries the average yield per acre is much higher than in the United States. In Germany, for instance, this difference often amounts to 20 bushels.

OBERLIN COLLEGE. An institution of higher learning at Oberlin, Ohio, founded in 1833. The attendance during the year 1909 was 2040 students, with 133 members, in the faculty. There were received in gifts and endowments during the year \$125,000. The books in the library number 125,000. The endowment of the college is about \$1,725,000 and the total assets, including endowments, buildings and grounds, is \$3,540,000. The president is Henry Churchill King.

OBESITY, ELECTRICAL TREATMENT OF. The difficulty under which most obese persons labor, that of taking enough muscular exercise in order to increase their organic elimination, has been met by the French physician named Bergonie, who obtains artificially intense muscular activity by causing an electrical current of 8 to 12 volts and of an intensity of 50 milliamperes, to pass through the body of the patient at the rate of 40 to 100 per second. The patient reclines between two large electrodes, covering the greater part of the anterior and posterior surfaces of the body. The passing of the current is absolutely painless, yet under its influence the large muscular masses of the thighs, calves, buttock, back and shoulders are caused to contract with sufficient energy to elevate the body even when weighed down by 88 pounds or more. According to Dr. Bergonie, this treatment causes rapid diminution of the fat, and increases the strength and resistance to fatigue, if the patient will maintain his diet at a ratio inferior to that which corresponds to his muscular outlay.

OCEANIA, FRENCH ESTABLISHMENTS IN. A number of separate islands and groups of islands in the Eastern Pacific, united to form a homogeneous French colony. The establishments consist of the Society Islands (the most important, Tahiti and Moorea), the Marquesas Islands, the Tuamotu group, the Leeward Islands, and the Gambier, Tubuai, and Rapa Islands. Total area, 1183 square miles; population (1906) mostly Polynesians, 30,563. The most important of the islands is Tahiti, whose chief town is Papeete (population 3617, of whom 1909 are French). There are 6 primary schools, each with about 100 pupils, in the various islands, besides mission schools, and a higher primary and a normal school at Papeete. The preparation of copra, rum, and sugar constitutes the chief occupation of the people. Fruits and vegetables are grown; the cultivation of cotton, coffee, and tobacco has fallen off, until the output has become a negligible quantity. The pearl fisheries are valuable. A French company capitalized at 6,000,000 francs has begun operations for the development of the phosphate mines on the island of Makatea. In 1907 the imports (textiles, 778,849 francs; wheat-flour, 354,255; metal work, 204,699) amounted to 3,331,810 francs (United States, 1,527,640; New Zealand, 802,678; France, 404,240); exports (copra, 1,388,965 francs; mother-of-pearl, 828,015; va-

nilla, 706,425), 3,639,954 (United States, 1,794,496; Great Britain, 537,413; France, 457,416). The islands have steamship connection with San Francisco, New Zealand, and Australia. There are ten post-offices. In 1907, 33 vessels of 59,616 tons entered, and 32 of 59,591 cleared. For all the islands the local budgets balanced (1908) at 1,322,010 francs; French subventions (1909), 204,000 francs. The colony is administered by a governor, with a privy council and a council of administration.

OHIO. One of the North Central States of the United States. Its area is 41,040 square miles. The population in 1909, according to a Federal estimate made in that year, was 4,594,240.

MINERAL PRODUCTION. The mineral products of Ohio are second only to Pennsylvania in quantity and value of production. The coal produced in 1908 amounted to 26,270,639 short tons, with a spot value of \$27,897,704. This is a falling off from the production of 1907, which was 32,142,419 short tons, valued at \$35,324,746. The coal market of 1908 was affected during the early part of the year by the uncertainty of manufacturers as to conditions following the panic. The labor supply was ample, as is shown by the fact that, notwithstanding the decreased tonnage, there was an increase of nearly 600 men employed during the year. These numbered 47,407. There were suspensions of operations in a number of the mines during the spring on account of a contention as to the length of time that the agreement between the operators and the miners should extend, the operators contending for two years, while the miners desired the agreement for only one year. The scale was finally signed for a period of two years. Ohio leads all the other coal producing States in the percentage of total product that is mined by the use of machines. In 1908 there were 1343 machines in use. There were killed in the mines of the State during the year 113 men, while 598 were injured. Ohio is second only to Pennsylvania in the production of pig iron. The amount produced in 1908, 2,861,325 long tons, was, however, a great reduction from the amount produced in 1907, which was 5,250,687 long tons. There were 73 blast furnaces in the State on January 1, 1909, of which 35 were in blast and 34 were out. There were manufactured in 1908, 159,578 tons of coke, which was a marked decrease from the product of 1907, 270,637 short tons. Ohio ranks first among the States in the value of its clay products. These in 1908 were valued at \$26,622,490, as compared with a value for the product of 1907 of \$30,340,830. In the production of petroleum, Ohio ranks fifth. There were produced in the State in 1908, 10,858,797 barrels, as compared with a product of 12,207,448 barrels in 1907. The value of the product in 1908 was \$14,178,502, while that of 1907 was valued at \$14,769,888. In the production of salt, Ohio ranks third, being surpassed only by New York and Michigan. In 1908 there were produced 3,427,478 barrels, valued at \$864,710. In 1907 the production was 3,851,243 barrels, valued at \$979,078. In the production of Portland cement, Ohio is also among the leading States. There were produced in 1908, 1,521,764 barrels, valued at \$1,305,210, as compared with a production in 1907 of 1,151,176, valued at \$1,377,155. Other important mineral products are grindstones, coal products, building

stone, sand and gravel, oilstones and whetstones, iron ores, pyrites, gypsum, natural cement and metallic paints. The value of the mineral products of the State in the year 1908 was \$134,499,335, as compared with a value of the product in 1907 of \$207,657,339.

The controlling influence in the production of coal in Ohio in 1909 was the competition of the West Virginia coals with the domestic product.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 153,062,000 bushels, valued at \$85,715,000 from 3,875,000 acres; winter wheat, 23,532,000 bushels, valued at \$26,056,000 from 1,480,000 acres; oats, 56,225,000 bushels, valued at \$23,052,000 from 1,730,000 acres; barley, 829,000 bushels, valued at \$506,000 from 32,000 acres; rye, 980,000 bushels, valued at \$745,000 from 57,000 acres; buckwheat, 318,000 bushels, valued at \$248,000 from 15,000 acres; potatoes, 16,926,000 bushels, valued at \$9,479,000 from 182,000 acres; hay, 4,033,000 tons, valued at \$43,960,000 from 2,820,000 acres; tobacco, 83,250,000 pounds, valued at \$8,741,250 from 90,000 acres. In the corn crop the State showed a large increase in 1909 over 1908, when the product was 136,675,000 bushels. The acreage increased about 300,000. The wheat crop was considerably less in 1909 than in 1908, when it amounted to 33,328,000 bushels. The acreage also considerably decreased. Ohio ranks third in the production of oats, being surpassed only by Illinois and Iowa. The oat crop of 1909 was decidedly larger than that of 1908, when it was 38,554,000 bushels. The acreage increased about 300,000. The tobacco crop is about three times as large as in 1908. In the latter year it was only 33,768,000 pounds. The acreage nearly doubled in 1909. Farm animals on January 1, 1910, were estimated as follows: Horses, 977,000; mules, 22,000; dairy cows, 947,000; other cattle, 978,000; sheep, 3,203,000; swine, 2,047,000. The wool clipped in 1909 was estimated at 15,923,200 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$839,580. Of these products the most important in point of value was pike perch, of which 8,625,100 pounds, valued at \$288,380 were taken. Next in point of value was herring, of which 4,792,200 pounds, valued at \$146,920 were taken. Following in order of the value of the production was German carp, \$128,730; pike and pickerel, \$70,270; whitefish, \$60,010; catfish and bullheads, \$24,580. Other fish taken in considerable quantities were mullet, yellow perch, sturgeon, white bass; also frogs and turtles. There were engaged in the fisheries of the State 830 independent fishermen, with 1234 wage-earning fishermen. The number of vessels engaged was 54; with a value of \$186,650.

EDUCATION. The report of the State Superintendent of Education for the year 1909 showed the attendance of male pupils in the State to be 331,913, and female pupils, 324,870. The male teachers numbered 7118, and the female, 17,070. The average monthly salary for male teachers in elementary schools was \$51, and for female teachers, \$46; for male teachers in the high schools \$82, and for female teachers, \$62. The total expenditures for education during the

year were \$25,011,361. During the year the college of agriculture and domestic science arranged for the extension of its teaching throughout the State. Boards of education were authorized to maintain agricultural, vocational and trades schools. Boards of education in city districts were authorized to provide for medical inspection of pupils.

CHARITIES AND CORRECTIONS. The State institutions include a State Hospital at Athens, State Hospital at Cleveland, State Hospital at Columbus, State Hospital at Dayton, the Longview Hospital, State Hospital at Massillon, State Hospital at Toledo, Hospital for Epileptics, Madison Home, Soldiers' and Sailors' Home, Orphans' Home, School for the Blind, School for the Deaf, Institution for Feeble-Minded, the Ohio Penitentiary, State Reformatory, Boys' Industrial School, and the Girls' Industrial Home. The total expenditures for the maintenance of these institutions for the fiscal year 1908 was \$43,323,327.

POLITICS AND GOVERNMENT. On January 12, Theodore E. Burton, of Cleveland, was elected Senator by the Assembly in joint session. The complete Republican strength went to Senator Burton, and the Democratic strength to former Governor James E. Campbell. One Independent vote was cast for Governor Judson Harmon. Elections by counties were carried on during the year on the question of license or no-license. On March 29, 93 saloons and three breweries were put out of business as a result of the carrying of Clark county for local option by a majority of 91 votes. This county contains Springfield, and there the vote was 1846 in favor of license. This was, however, overcome by the large no-license vote in the county. On April 28, Ross county was carried by the license forces after a bitter election fight during which the local company of State militia was called out to insure a fair contest in the city of Chillicothe. In this city there were frequent clashes on the streets, and many of the anti-saloon workers were attacked at the polls. The county was carried for license by a majority of 2000, most of which were obtained in the city of Chillicothe. On June 9, the license forces gained another victory by carrying Mahoning county, in which is the city of Youngstown. The majority for license was 1969, the greater portion of which were cast in Youngstown.

The year saw what will probably prove to be an end of the nine-year agitation for lower street railway fare, which was inaugurated by Tom L. Johnson, mayor of the city. In April, 1908, the mayor had begun the experiment of operating the lines of the Cleveland Railway Company on a three-cent basis, with free universal transfers. Owing to various influences his experiment proved unpopular and the franchise under which the lines were operated was defeated upon a referendum vote in October of that year. This brought the experiment to a sudden halt. Financial troubles intervened and late in the year Judge Robert W. Tayler of the district Federal court was named receiver of the company. This was the situation at the beginning of 1909. Mayor Johnson renewed his fight for lower fares by putting through the council the so-called Schmidt franchise, granting rights on Payne Avenue, S. E., for a three-cent road. This grant was intended to be the basis for further franchises to take in the entire city, and the various franchises of the Cleveland Rail-

way Company should expire from time to time during the next two years. This grant was defeated upon a referendum vote on August 3, this year. Meanwhile Judge Tayler had enunciated a new plan of settlement, patterned after the Federal Supreme Court dictum in the New York gas case, by which the fares should be put upon a sliding scale guaranteed to return 6 per cent. to stockholders, and no more to be allowed. The Mayor and Company being unable to agree upon the terms under the Tayler plan, they finally agreed, in October, to refer the several disputed points to the judge himself, to decide and to abide by his decision as referee. He made his decision and the council passed the so-called Tayler ordinance upon December 18. A referendum will be held upon this grant, probably in February, 1910, and indications are that it will be approved.

On September 7, Tom L. Johnson was renominated for Mayor of Cleveland in the Democratic primary election. The Republican nominee was Herman C. Baher. Dr. Louis Schwab was nominated by the Republicans for Mayor of Cincinnati, and John W. Peck by the Democrats. Brand Whitlock, the Independent candidate, was renominated for Mayor of Toledo. In the elections held on November 2, Mayor Johnson was defeated by a plurality of about 3500. The Republicans carried nearly every other office and gained control of the city government. In Cincinnati, Dr. Schwab was elected Mayor by a plurality of about 10,000. Mr. Whitlock was elected Mayor of Toledo by about 300 majority. This is his third term in this office. At a special election on April 21, James H. Cassidy was elected Congressman from the twenty-first district (Cleveland) to succeed Theodore E. Burton.

OTHER EVENTS. On April 21, eight persons were killed and seven fatally hurt, and at least seven seriously injured, and property valued at \$1,000,000 was destroyed by a tornado, which swept over Cleveland and Northern Ohio. On May 7 a verdict of guilty was rendered by the United States District Court in the "bucket shop" case in which the defendants were John M. Gorman, Louis W. Foster, Edwin C. Heil, John M. Scott, Arthur C. Baldwin and John C. Campbell. The formal charge was using the United States mails to defraud. On June 15 a bomb, which was aimed to kill William C. Niven, Mayor of Bellefontaine, was thrown through a window of his residence. Mr. Niven had received several anonymous letters within a few months which threatened his life. On September 11, a special grand jury in session at Youngstown returned 47 indictments against 17 men, officials of Youngstown and Mahoning counties. A special grand jury was called as a result of the movement in which leading citizens, irrespective of party, combined and employed detectives to ferret out charges of official crookedness. The jury returned a scathing arraignment of conditions in Youngstown. It charged that gambling dens and dives had been protected. Ten of the indicted men, confessing graft, were given fines and forever disfranchised by the Court, December 24. On November 1, five new indictments in connection with the failures in Norwalk of the Ohio Trust Company and the Norwalk Savings Bank Company, were returned by the grand jury. There were two joint indictments against James G. Gibbs, former president, and Jay F. Laning, former

vice-president of the Ohio Trust Company and former Congressman, for writing letters to defraud; one against James G. Gibbs, for aiding and abetting perjury; one against W. Christian, former secretary of the Ohio Trust Company, for perjury, and one against Pay Kies, former treasurer of the Norwalk Savings Bank Company, for perjury. These indictments are the third list returned against Laning and Gibbs, and the second against Christian and Kies. All of the old indictments, with the exception of one against Laning, for embezzlement, were quashed. Laning was tried on the embezzlement indictment in Fremont and was acquitted.

LEGISLATION. The session of the legislature was a special one. The most noteworthy acts were those providing for the medical inspection of schools and for the regulation of the liquor traffic. See **PROHIBITION.**

OFFICERS: Governor, Judson Harmon; Lieutenant-Governor, Francis W. Treadway; Secretary of State, Carmi A. Thompson; Treasurer, David S. Creamer; Auditor, Edward M. Fullington; Commissioner of Education, John W. Zeller; Attorney-General, Ulysses G. Denman; Adjutant-General, A. B. Critchfield; Commissioner of Insurance, S. J. Vorys—all Republicans, except Harmon and Creamer.

JUDICIARY. Supreme Court: Chief Justice, James L. Price; Associate Justices, A. N. Summers, W. B. Crew, John A. Shauk, William Z. Davis, William T. Spear; Clerk, John S. McNutt—all Republicans.

The State Legislature of 1909 was composed of 20 Republicans and 14 Democrats in the Senate, and 71 Republicans, 45 Democrats and 1 Independent in the House. The State representatives in Congress will be found in the section *Congress* of the article **UNITED STATES.**

OHIO STATE UNIVERSITY. An institution of higher learning at Columbus, Ohio, founded in 1870. There were in attendance in 1908-9, 3012 students, with 224 members of the faculty. The number of volumes in the library was 88,656. The University received in gifts during the year \$29,450. The productive funds of the University amount to about \$835,000, with a total income of about \$615,000. The president is W. O. Thompson, D. D., LL. D.

OKLAHOMA. One of the South Central States of the United States, formed in 1907 by the union of Oklahoma and Indian Territory. Its area is 70,057 square miles. The population in 1909, according to a Federal estimate made in that year, was 1,592,401.

MINERAL PRODUCTION. The development of the petroleum fields of Oklahoma has been one of the important features in the mineral history of the country in the last few years. The field of which Oklahoma is a part includes also Kansas, but in the last year or two the production of the Kansas territory has decreased while that of Oklahoma has increased. The State in 1908 ranked first in the production of petroleum. There were produced 45,798,765 barrels, valued at \$17,694,843. Although Oklahoma surpasses all other States in production, in the value of its product it is surpassed by California and Illinois. In 1908, 145 wells were drilled, of which 39 were dry, 99 were oil, and seven were gas wells. In Osage county there were approximately 100 oil-producing properties. While the coal production of the State has increased greatly in the last few years, the

production of 1908 showed considerable decrease from that of 1907. In the former year there were produced 2,948,116 short tons, valued at \$5,976,504, while in 1907 there were produced 3,642,658 short tons, valued at \$7,433,914. While part of the decrease in production was due to financial depression and also to the unusually warm weather which prevailed during the winter months, both at the beginning and end of the year, the main cause of the decrease was the increased consumption of oil and natural gas throughout Texas, Oklahoma and Louisiana. In spite of the decrease in the production, the number of men employed in the coal mines of the State increased from 8398 in 1907 to 8651 in 1908. From April 1, extending into June, there was a general suspension of operations pending an agreement in regard to the wage scale. There were 44 fatal and 120 non-fatal accidents in the coal mines of the State during the fiscal year ending October 31, 1908. The clay products of the State in 1908 were valued at \$562,929, a considerable decrease from the value of the product of 1907, which was \$664,512. Among other mineral products are coal products, gypsum, lime, mineral waters, salt, stone, sand and gravel. The value of the mineral products of the State in 1908 was \$26,586,751 as compared with the value of the product in 1907 of \$26,908,968.

The production of coal in 1909 was about the same as in 1908.

The strong efforts of the Producers' Association to suspend drilling operations were successful to the point of reducing the production of petroleum in 1909. The transportation facilities improved throughout the year. In September an exceptionally large gusher was developed five miles north of Okmulgee.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 101,150,000 bushels, valued at \$55,632,000 from 5,950,000 acres; winter wheat, 15,680,000 bushels, valued at \$15,837,000 from 1,225,000 acres; oats, 15,950,000 bushels, valued at \$7,337,000 from 550,000 acres; barley, 690,000 bushels, valued at \$448,000 from 30,000 acres; rye, 54,000 bushels, valued at \$50,000 from 4000 acres; potatoes, 1,890,000 bushels, valued at \$1,796,000 from 27,000 acres; hay, 810,000 tons, valued at \$5,913,000 from 900,000 acres. The corn crop in 1909 was considerably smaller than in 1908, when it amounted to 122,239,000. The acreage decreased by about 1,000,000 acres. The winter wheat crop was about the same in 1909 as in 1908. The oat crop was considerably larger than in 1908, when 11,250,000 bushels were produced. The acreage increased by about 100,000 acres. The potato crop in 1909 was considerably smaller than in 1908, which was 2,106,000 bushels. The acreage remained the same, 27,000 acres. The hay crop also suffered a considerable reduction, as there were produced in 1908 1,305,000 tons. The acreage of hay likewise remained the same. Fruit cultivation has increased notably within the last few years. Broom corn and Kaffir corn are extensively raised. The number of farm animals in the State on January 1, 1910, were as follows: Horses, 804,000; mules, 191,000; dairy cows, 355,000; other cattle, 1,637,000; sheep, 108,000; swine, 1,302,000. The wool clipped

in 1909 was estimated at 470,400 pounds. The cotton crop of 1909-10 was estimated at 617,000 bales.

EDUCATION. The school attendance in 1909 was 375,000. The number of male teachers was 3191, and female teachers 6383. The average salary of teachers was about \$60 a month. There are in the State about 500,000 children of school age, and under the new compulsory education law the attendance greatly increased. County normal institutes are held in every county of the State during the vacation season. The public schools consist of primary schools, giving the first four years of instruction; grammar schools, giving the next four years; and high schools, giving the last four years. In Guthrie, Oklahoma City, Shawnee, Enid, Muskogee, Magnum, McAlester, Alva, Vinita, and many other large cities kindergarten schools are maintained and supported at the expense of the city. The State Superintendent supervises the educational work of the State and acts as president of the State Board of Education.

FINANCE. The report of the State Treasurer for the fiscal year beginning November 16, 1907, and ending November 30, 1908, showed receipts during that period of \$251,045 and expenditures of \$218,290, leaving a balance on November 30, 1908, of \$32,124. The chief receipts were from the general revenue fund, common school fund, public building fund and common school indemnity.

CHARITIES AND CORRECTIONS. As Oklahoma is a new State, most of her charitable and correctional institutions are either in course of construction or contemplation. The Eastern Hospital for the Insane is to be constructed from plans already accepted. An appropriation of \$200,000 for buildings and \$150,000 for maintenance was made by the last legislature. The Hospital for the Insane at Sulphur had a population in 1909 of 479, and had an appropriation of \$352,348 for improvement, support and maintenance. There are in the Insane Asylum at Norman 553 patients. A school for the feeble-minded has been established and an appropriation of \$25,000 for buildings and \$25,000 for maintenance has been made. No steps have as yet been taken towards building this institution. At present all grades of imbeciles, idiots, feeble-minded and epileptics are cared for in the insane hospitals. The State penitentiary at McAlester is now in process of construction and there are 1235 convicts. An appropriation of \$400,000 for buildings and \$173,000 for maintenance has been made. The prison when completed will cost a million dollars. A State Reformatory has been established at Granite, and an appropriation of \$50,000 has been made. The total cost will be \$750,000. Among other institutions already established or about to be established are the State Training School for juvenile delinquents, a school for the deaf at Sulphur, a school for the blind at Fort Gibson, a school for dependent and defective negro children, at Taft. The Whitaker Orphan Home is a State institution for the care of dependent children. It has a population of 135 children and the names of 200 children are on the waiting list. There are other large orphan schools on land set apart for the Choctaw and Creek nations. These receive appropriations from the Federal government. There are about 150 Indian children cared for in these institutions.

POLITICS AND GOVERNMENT. On January 20, Thomas B. Gore was reelected United States Senator by the legislature, receiving a straight party vote. The most important events in the history of the State during the year were in connection with the indictments and prosecutions for land frauds, in which Governor Haskell and other prominent citizens of the State were concerned. On February 3, the United States Grand Jury for the Eastern District of Oklahoma brought in three indictments for frauds in Muskogee township. One indictment was against Governor Charles N. Haskell, Clarence W. Turner and Walter B. Eaton. The second was against William T. Hutchings and Clarence W. Turner, and the third was against Albert Z. English, Frederick B. Sever and Jesse Hill. The indictment set forth that the United States has always exercised official functions in the matter of protecting Indian tribes in the enjoyment of lands set apart for their use by supervising through the Interior Department the selling of such lands, when this is done under the law for such lands, and also taking care of the proceeds for the Indians. An act of March 1, 1901, provided for the selling of lots in town sites in the Muskogee or Creek Nation Reservation by auction to the highest bidders at not less than their appraised value. The act, however, contained a provision in favor of persons already in occupancy of lands within town sites in that it permitted such persons to purchase not more than two lots at one-half of their appraised value. Under these circumstances it was charged that the defendants conspired to so manage matters by means of "dummies" that they finally would come into possession of many valuable lots in Muskogee at one-half of their appraised value. They were first to schedule with the Town-site Commission the names of all the persons they could think of in the different parts of the United States, and so set in motion the government machinery which would finally result in the issuance of patents in these names. While this was being carried out it was charged that the defendants would secure quit claims from these prospective patentees. Having secured record title the defendants would then hasten to dispose of the lots to innocent third persons. The result of this is charged in the indictments as a fraud upon the United States and also upon the Creek Nation, as wards of the government. Overt acts to the number of 47 in the first indictment, 13 in the second and 92 in the third, are set forth as having been committed by the different defendants in pursuance of the conspiracy. These overt acts consisted in the writing of letters, signing of deeds, making of payments and accepting patents from the government. In cases where "dummies" refused to sign quit-claim deeds or demanded money, it was charged in the indictments that forgery of deeds in their names was resorted to to complete the claims of title.

It was charged by Governor Haskell that these indictments were returned as the result of a conspiracy against him between President Roosevelt and W. R. Hearst, with the object of discrediting him. Resolutions were passed in the lower house of the legislature on February 4, condemning the indictments returned against Governor Haskell. Similar resolutions were also passed in the Senate. Governor Haskell was not formally placed under arrest. The

trials under these indictments were begun on April 5 before Judge John A. Marshall of Utah, who was especially assigned to try the cases. A motion to quash the indictments had previously been made on March 14, as the result of alleged misconduct on the part of the special Assistant Attorney-General, Sylvester Rush of Omaha, who conducted the grand jury investigation at Muskogee, which resulted in the indictments. It was alleged that government secret service operatives gave hearsay testimony before the grand jury; that important testimony was suppressed; that the government denied the jury's request for certain testimony, and that witnesses were coerced. The motion to quash was upheld on April 10, and the indictments were dismissed. A new grand jury was drawn and the case was placed before it for another investigation. Civil suits had previously been begun against Governor Haskell and other prominent Oklahomans by the government, and on May 8, Federal Judge Campbell overruled the demurrers of the defendants of these suits. This decision involved the legality of millions of dollars worth of lots, and created great consternation at Muskogee. About 1500 purchasers of land were interested. Judge Campbell announced, however, that all innocent purchasers would be protected. These suits were brought by the United States government for the Creek Indian Nation to recover for that tribe 3000 acres of land alleged to have been obtained by Governor Haskell and the other defendants by the fraudulent scheduling of "dummies." The overruling of the demurrers of the defendants practically decided the cases on their merits against the defendants on the allegation that the defendants obtained the lots by fraud. On May 27, Governor Haskell forwarded a long petition to Washington in which he made charges against William G. Gregg, United States Attorney for the Eastern Division of Oklahoma, Sylvester Rush and M. L. Mott, special attorneys for the government, and Richard R. Taylor and Edward B. Lemon, secret service agents of the government, who had been engaged in the work of preparing and prosecuting against the Governor and other defendants, the cases growing out of the charges of alleged frauds and conspiracies touching town lots in Muskogee. Governor Haskell demanded that the attorneys and agents of whom he complained be withdrawn from the case and assigned as his reason that they have "combined and federated together to secure unlawfully and by improper means" indictments against him. The most sensational features in the Governor's charges were those in which he attempted to show that there was an organized conspiracy to indict and convict him and to accomplish it by such unusual methods as publicity and the intimidation of witnesses, and his charge that the whole affair was carried on with the sanction of President Roosevelt, who was then in the White House. On May 27, indictments were brought by the second grand jury against Governor Haskell, F. B. Sever, W. W. Eaton, A. Z. English, W. T. Hutchings and C. B. Turner, on practically the same charges as were brought by the previous grand jury. Jesse Hill, who was the only other man under investigation and who had been indicted in January at Muskogee, was not indicted. Bond was fixed at \$5000 each.

In addition to the indictments mentioned

above, the Federal grand jury on February 9 returned indictments against 26 representatives of corporations on the charges of stealing valuable timber lands from segregated lands in Oklahoma. On July 3, Federal Judge Campbell held that the Oklahoma State law, prohibiting the shipment of gas and oil out of the State, was unconstitutional. On August 6, Judge Campbell, ordered the dismissal of 30,000 Indian land alienation suits, involving 2,000,000 acres, brought by the government in the interests of the Five Civilized Tribes. On September 4 Governor Haskell addressed a letter to President Taft in which he charged the Federal government with giving aid to violators of the Prohibition law in Oklahoma, first by allowing liquor advertisements to be sent through the mails, and second, by not conforming to the law in issuing Federal liquor licenses, and third, through the abuse of the protection of interstate commerce. The letter was accompanied by a petition signed by 2000 citizens. The President was appealed to to recommend at the coming session of Congress an enactment for such additional legislation as may be necessary to give complete relief on all three propositions. On September 29, the State, in fulfillment of its pledge under the bank guaranty law passed in 1908, paid the depositors of the largest bank in the State with deposits of more than \$3,000,000. Less than \$200,000 was demanded by the depositors. On October 21, the Comptroller of the Currency granted permission to the Farmers' State Bank of Oklahoma City to change to a national bank. Following the adoption of the bank guaranty law, more than 60 of the national banks of Oklahoma renounced their Federal charters and became State associations. The Farmers' State Bank was the first to change back to a national bank. See ELECTORAL REFORM.

OTHER EVENTS. On March 25 a disturbance occurred out in McIntosh county caused by the attempt of several deputy sheriffs to arrest three cattle thieves who were half-breed Indians. In the struggle three half-breeds were killed, five were wounded, and 40 taken into custody. Two days later, five deputies attempted to arrest the leader of the half-breeds, Crazy Snake, and two of them were killed. The Governor thereupon ordered out the State militia and endeavored to capture the old chief, who fled. He assembled nearly 200 half-breed negro Indians and this band was surrounded on March 28 by the State militia at Hickory Hills. The Indians, however, escaped and fled to a stronger position. On March 29 a detachment of Crazy Snake's band was surrounded, one was killed and eight captured. The Indians scattered and 25 more were later captured, among them Crazy Snake. An investigation by government officials followed, and they reported on March 30 that no Indians were involved in the original trouble, and that Crazy Snake was to be absolved from blame as he had the right to defend his home from attacks by irresponsible persons. Crazy Snake insisted that deputies rode to his house and opened fire and that the bullets pierced the walls of his cabin. On May 29 a cyclone caused great damage in Lincoln county. Several persons were injured and many buildings were destroyed.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: A child labor law was passed and a measure

was enacted making eight hours a day's labor on all public works. A juvenile court was established.

OFFICERS: Governor, C. N. Haskell; Lieutenant-Governor, George Bellamy; Secretary of State, Bill Cross; Treasurer, J. A. Menefee; Auditor, M. E. Trapp; Attorney-General, Chas. West; Adjutant-General, F. M. Canton; Commissioner of Insurance, T. J. McComb; Commissioner of Education, E. D. Cameron—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Mathew J. Kane; Associate Justices, Jesse J. Dunn, Robert L. Williams, Jno. B. Turner and Samuel W. Hayes; Clerk of the Court, W. H. L. Campbell—all Democrats.

The State Legislature of 1909 was composed of 8 Republicans and 36 Democrats in the Senate, and 37 Republicans and 72 Democrats in the House. The State representatives of Congress will be found in the section *Congress* of the article UNITED STATES.

OLD-AGE PENSIONS. The world-wide agitation during the past few years for increased provision by public authority for the pensioning of aged employees continued during 1909. The very general adoption during recent years of some form of old-age annuities by governments, by employers or by the coöperation of governments and employers, with or without contributions from employees, indicates that in all probability some provision for retirement and support of workmen during their declining years will soon be universal. Probably the most notable new provision in the United States was that made in November by the New York Central Railroad, effective January 1, 1910, and applicable to all of its own and its leased lines, thus bringing into line with the old-age pension movement, the last of the great railway systems. About 100,000 men are employed by these lines; 1765 will be retired during 1910; the annual expense of the scheme is put at \$500,000. The plan provides for the retirement of all employees reaching the age of 70; the pensioning of those who have been in the service during the previous ten years; after twenty years of continuous service an employee may retire with a pension, regardless of age; the amount of the pension shall be as many per cent. of the average pay during the ten years preceding retirement, as the employee has served years. On December 25, the officials of the Rock Island railroad announced a pension system on exactly the same basis as the foregoing, to become effective January 1, 1910. The age of compulsory retirement was, however, fixed at 75, and provision was made for voluntary retirement at 65. In connection therewith, the rule was adopted that hereafter no inexperienced man of more than 35 years, and no experienced man of more than 45 shall be taken into the employ of the company. The Massachusetts Legislature authorized the establishment of a coöperation pension system by the Boston and Maine Railroad and its employees. The fund contributed by the road and the men is to be administered by a board of seven, three of whom are to be chosen by the road, three by the employees and the other by these six. The minimum pension, after twenty years' service, shall be \$200 per year. The pension scheme of the Pennsylvania Railroad, after which the above New York Central plan was patterned, now provides for the compulsory retirement of men at the age of 65;

late in December, some 4500 of its employees petitioned for the inauguration, in addition to the existing scheme, of a coöperative plan making it possible for employees to increase their pensions by contributions during their active years, and providing for voluntary retirement at age of 60. The civil service employees of the United States have organized a Retirement Association which aims to secure from Congress legislation providing pensions for aged civil service employees of the government. The civil service has now been in existence long enough so that it now includes a considerable number who have grown gray in some department of the national government. The great extension of the civil service, and particularly the inclusion of the large body of well-organized postal employees, makes highly probable the success of this demand. It is claimed that every European country and most American ones have already pensioned civil employees; and that civil servants are entitled to retirement on pensions equally with members of the army and navy. In his annual message to Congress, President Taft recommended the establishment of a civil pension system on grounds of efficiency and economy. He argued that with such a system, the government could secure able employees at moderate salaries, and could maintain the highest efficiency among its civil servants by retiring aged members. A bill introduced in Congress in December by Representative Wilson would provide pensions of \$120 annually for all men 65 years of age and over, regardless of whether they have ever been civil servants. New York State teachers in December petitioned the State Legislature for the establishment of a retiring fund. About December 20, the Brooklyn Rapid Transit Company announced a plan of pensioning aged employees. On December 31, the Philadelphia Rapid Transit Company decided to give \$500 free insurance to each of its 9000 employees, and to grant pensions of \$20 a month to all employees 65 years of age who have been in the service 25 years.

A bill was presented to the Massachusetts Legislature in 1907, providing a pension of \$5 per week for all persons 65 and over who should apply for it. This led to the appointment of a Commission to investigate thoroughly the whole subject of old-age pensions. The Commission submitted a preliminary report in January, 1909, and was continued until January 15, 1910. This represents the pioneer move in this country, looking toward a general public old-age pension scheme and is also notable for the thorough nature of the inquiry being made to determine the need and advantages of any kind of scheme for an American State. In its preliminary report, the Commission gave an account of the systems in Germany, England, Denmark, Belgium, France, Italy, New Zealand, New South Wales, Victoria, Australia, Canada and Austria, and of thirty-two pension schemes maintained by American railways and industrial, commercial and banking corporations. From a detailed study of European countries, the Commission concluded that as a rule the expenditures for poor-relief tend to increase rather than decrease after the establishment of an old-age pension scheme. While the expenditures for out-door relief were found lessened in many cases, those for in-door relief quite uniformly increased. It thus appears that old-age pensions are not a solution of poverty or de-

pendency, chiefly, because they do not reach the pauperized portion of the population. The Commission inquired intimately as to the various classes of dependents and as to the sex, nationality, occupation, income, physical condition, and methods of saving of the non-dependent, but necessitous poor. In connection with this Massachusetts movement, Mr. Frederick S. Hoffman calculated the minimum cost of State pensions of \$2.50 per week, on the assumption that 40 per cent. of pensionable persons should apply for them. This minimum cost for Massachusetts, were the pensionable age put at sixty years, would be \$13,138,000 per year; at sixty-five years, \$8,419,000; and at seventy years, \$4,982,000. For the entire United States at this last age he found the cost would be 106,605,000. Mr. Hoffman finds that less than 2 per cent. of the Massachusetts population sixty years old and over were in alms-houses; in his opinion, therefore, the most pertinent inquiry is to ascertain the condition of the other 98 per cent. and how they managed to keep out of the poorhouse.

GREAT BRITAIN. The scheme effective January 1, 1909, has attracted the interest of the entire world. Provision for the enormous outlay necessary to meet the pensions became the central fact in the budget of 1909, and was therefore largely responsible for the radical character of the Finance bill and the constitutional crisis growing therefrom. The statistics for the first nine months were as follows: England and Wales, pensioners, 421,432; amount of pensions, £3,642,747; Scotland, 75,134 and £667,007; Ireland, 186,202 and £1,723,904. There were thus a total of 682,768 pensioners, and they had received up to September 30, a total of about \$31,000,000.

AUSTRIA. In Austria public opinion has inclined more strongly to a system of working-men's insurance, providing annuities in case of disablement and old age as against the system of old-age pensions on a non-contributory basis, and granted as a right, as in England. An act to regulate such insurance for employees in private, and in certain branches of the public, service, went into effect January 1, 1909. It divides employees into six classes on the basis of salary; fixes monthly premiums at one per cent. of the minimum salary in each class, one-third of the premium to be paid by employees and two-thirds by employers, except in certain cases when one-half is paid by each. No claims for benefits may be made until 120 monthly premiums have been paid, unless disability or death should result from accident during work. The disablement annuity at the end of ten years equals thirty times the monthly premium, and therefore increases 5 per cent. of this sum annually until the fortieth year. It then becomes an old age annuity.

FRANCE. France has operated a moderate old-age pension plan on a contributory basis since 1905, but there has been insistent demand for its extension. The age limit has been 70 years. The number of beneficiaries increased from 190,000 in 1905 to about 500,000 in 1909, and the cost to the state increased from \$3,500,000 to almost \$19,000,000. The Chamber of Deputies enacted a more liberal measure in 1907, but its passage was blocked by the Senate until February, 1909, when that body rejected it and substituted therefor a new bill. This provides for pensions of 120 francs to members of the work-

ing classes 65 years of age and over. The fund for their payment is to be raised by employers and the state. The employers are required to pay annually 9 francs for each workman or employee at least 18 years old, and 4½ francs for each one under 18 years. The bill also provides for old-age pensions based on regular monthly payments, but with the provision that the pension shall be considerably larger than would be provided by such payments.

NEW ZEALAND. The government's National Provident bill, which has been in contemplation for two years, has several unique features as an old-age pension scheme. It provides that any person depositing sums with the post-office, regularly or irregularly, in equal or unequal amounts, will receive, in addition to the annuities which these deposits would purchase, a subsidy provided by the state. The size of this subsidy is varied according to the age of the depositor; conjugal condition (with discrimination against bachelors and spinsters); and the number of children, if married; wealth; and membership in a friendly society.

OMAN. An independent state in southeastern Arabia. Area, about 82,000 square miles. Population (estimated), about 500,000, mostly Arabs with some Indians, Persians, Baluchis, and Swahili negroes. Muscat, the capital (with its suburb Muttra), has about 30,000 inhabitants; it possesses the only good harbor. About 76 per cent. of the foreign trade is with Great Britain and British India. The total trade in 1907-8 was valued at \$939,500. Bombay serves as an *entrepôt*. There is a cable to India via Jask, and a weekly mail service to Karachi and Bombay. The Sultan (1909, Seyyid Feysal bin Turki, born 1864) is in treaty relations with and is subsidized by the government of India. A British consul and political agent (Capt. F. McConaghey in 1909) resides at Muscat.

ONTARIO. A province of Canada. Area, 260,862 square miles. Population (1901), 2,182,947. Capital, Toronto, with 208,040 inhabitants in 1901 and, with suburbs, 335,000 in 1909. The executive authority rests with a lieutenant-governor, appointed by the Governor-General of Canada, and acting through a responsible Executive Council. The Legislative Assembly consists of one house of 106 members elected for four years. The Lieutenant-Governor in 1909 was Colonel John Morrison Gibson; the Premier was Sir James P. Whitney. For statistics and other details, see CANADA.

In April the grant of \$2,000,000 by the legislature to the Canadian Northern Railway was announced. Other lines were also to be subsidized. As a result of local option, there were in April 334 out of the 807 municipalities with only a single license. In Toronto, 142 bars were suppressed on May 1, and there were at that time only 110 licenses in the city.

OPERA. See MUSIC.

OPIUM. The International Opium Commission met at Shanghai, January 1, 1909. The Commission consisted of three men selected by those nations having territorial possessions in the Far East, Great Britain, Germany, France, Portugal, the Netherlands, China and Japan being represented. The Commission found that the use of opium in the Philippines was not confined to smoking, and that the morphine habit showed signs of spreading. It was recommended that the various governments having concessions

or settlements in China should close the opium dens within their limits. This measure will test the sincerity of the European Powers directly concerned. Rochester, of the Manila Bureau of Health, made a study of opium habitués in the Philippines, and concludes that opium-smoking has to a great extent declined among the Chinamen, who have not been slow to accept the hypodermic syringe as a method of taking the drug. It was found that 29 per cent. of the patients in San Lazaro had developed from opium-smoking to the injection method. One of the most interesting and surprising facts noted was the good physical condition of those who took the drug by the smoking method, even though they had been addicted to the habit for from five to ten years. Many of the smokers were of robust physique, and had been doing hard manual labor every day. In contrast to them were the users of the hypodermic syringe. These were usually greatly emaciated, with sunken eyes and haggard expression and a muddy skin. A corresponding difference was found in the amount of difficulty in instituting curative measures in these two classes of cases, the opium-smokers responding much more favorably to measures taken for their relief. A startling discovery was made in France, that in Paris and many garrison ports, the opium habit had become widely prevalent, particularly in Toulon. "Reputable" merchants were found to have installed secret opium dens in their premises, and the number of habitués was disquietingly large. The Minister of the Interior issued a decree regulating the sale, purchase and use of opium and its extracts, and forbidding the selling of opium in any quantity except to wholesale merchants for industrial purposes, to chemists and pharmacists. Officially, opium and its extracts are not permitted to be sold by pharmacists except for use in medicine, under severe penalties. Beginning with April 1, 1909, neither opium nor any mixture or compound containing or representing opium in any form can legally be brought into the United States or any outlying possessions, excepting for strictly medicinal purposes. This term is declared to mean for treatment or prevention of diseases only.

OPIUM COMMISSION, INTERNATIONAL.
See CHINA and OPIUM.

ORANGE RIVER COLONY. A British colony in South Africa. Capital, Bloemfontein. Area (estimated), 50,392 square miles. A census taken in 1904 returned 142,679 whites and 244,636 colored; the population was estimated in 1907 at 447,008. Bloemfontein had (1905) 13,512 whites, 16,033 natives, 3487 military; Kroonstad, 2454 whites and 3343 natives; Ladybrand, 2333 and 1515; Harrismith, 2238 and 3068. Education (primary) is free and conditionally compulsory. There were (June 30, 1908) 377 government schools, with 725 teachers and 19,502 pupils. Grey College and its branches provide higher instruction. In 1904 the Dutch Reformed numbered 101,079; Anglicans, 17,879; Wesleyans, 5121; Roman Catholics, 3286. The country is essentially pastoral. There were (1906-7) 155,330 acres under wheat and 1543 under tobacco. The live-stock (1907) numbered 8,020,308 sheep, 585,077 cattle, 127,579 horses, and 62,439 swine. The total mining output in 1905-6 was valued at £997,753 (diamonds, £902,728); in 1906-7, 446,063 tons

of coal, valued at £139,675, were produced. Gold and salt are found. The imports and exports for 1908-9 were valued at £2,945,860 and £3,558,373, against £3,317,770 and £3,789,653 in 1907-8. The colony belongs to the South African Customs Union. The railway statistics are included with those of the Transvaal (q. v.). There are 6653 miles of telegraph and 227 miles of telephone lines. The revenue and expenditure for 1908-9 were £915,286 and £952,513 respectively, against £740,367 and £733,233 for 1907-8. Six banks have branches in the Colony. In 1907 the Post-Office Savings banks had 6433 depositors, with deposits amounting to £158,061. By Letters Patent, dated June 5, 1907, a responsible government has been constituted for the Colony. The Lieutenant-Governorship was abolished July 1, 1907, and Sir Hamilton Goold-Adams, the holder of that office, was appointed Governor. The new constitution provides for a legislative council, and a legislative assembly popularly elected. By the South Africa act, the Orange River Colony is to be made a member of the Union of South Africa. See SOUTH AFRICA, BRITISH.

HISTORY. The chief issue in internal politics during the year was the education question. Down to the beginning of the year 1908, the Orange River Colony followed the same rule as to the use of the Dutch and English languages in the schools as was in force in the Transvaal under General Smuts. By this system, each child was taught first in his native tongue, and then gradually, if this was Dutch, learned English, which was the prescribed language for the higher classes. But under General Hertzog, who was a zealot for the Dutch tongue, a new law was adopted which went into effect at the beginning of 1908. This gave equal rights to both tongues, requiring that both should be the medium of instruction throughout the school course. This system of compulsory bi-lingualism was very objectionable to the English, and was also opposed by many of the Boers, in that it involved the repetition of lessons in both languages, and thus doubled the amount of time necessary for study, and greatly retarded progress. The English element protested against a system that denied them the rights which they had in every other colony. The Dutch element took no overt action, but privately expressed disapproval of the law. They contended that it victimized them for political party purposes. As to the retention of the *taal*, they believed that it could easily be taught in the home by the Dutch parents. Discussion became more acute after the dismissal of three school inspectors in May. No satisfactory reason could be drawn from the government for this action, and it was believed by the opposition that the inspectors were dismissed for executing the law with especial thoroughness, and that the government had merely wished to make scapegoats of them. Throughout the year the discussion of bi-lingualism was continued with some bitterness, and along party lines. The government refused to consider any amendment to the law to meet the objections of parents. This led to a movement in the country for the establishment of private schools on the Transvaal principle, and a committee was proposed in order to raise money for a system of education which would not require the compulsory use of both languages at the same time in teaching. On November 25 General Hertzog held a conference

with members of the School Boards, and there seemed a prospect of amicable adjustment. In the spring, it was reported that owing to the depression of agriculture, the condition of the British settlers in the colony was very bad. The matter came up for discussion in the British House of Commons, and it was said that the British settlements would fail unless aid were forthcoming. On June 2 the Act of Union was adopted by both Houses. (See SOUTH AFRICA, BRITISH.) The government was criticised for its policy of doles to the indigent which was carried out without regard to the advice of the Indigency Commission. This distribution of cattle and other aid was made possible by the financial surplus in prospect, and by the fact that a portion of recent loans still remained unspent. The progress in the matter of retrenchment of the civil service was reported on June 15 by Premier Fisher, who declared that the number of civil servants was cut down by thirty, of whom twenty were English and nine South African. Since November, 1907, there had been ninety-six new officials appointed, forty-two English and fifty-two South African. As to the government's programme the Lieutenant-Governor promised bills for land grants and for the relief of widows and orphans, and suggested a measure for industrial colonies. He declared that the customs revenue had decreased on account of the increased consumption of home products.

ORDWAY, JOHN MORSE. An American chemist and educator, died July 3, 1909. He was born in Amesbury, Mass., in 1827, and graduated from Dartmouth College in 1844. As a young man he worked in a druggist's shop in Lowell, Mass., and was chemist for several large manufacturing establishments in New England. He was for fifteen years professor of industrial chemistry and metallurgy in the Massachusetts Institute of Technology, and was, at the same time, an instructor in Boston University. Following this he served for thirteen years in the faculty of Tulane University, as professor of chemistry and biology, retiring in 1907. Professor Ordway was well known through his contributions on scientific subjects to magazines and technical publications.

OREGON. One of the Pacific Division of the United States. Its total area is 96,699 square miles. The population in 1909, according to a Federal estimate made in that year, was 505,339.

MINERAL PRODUCTION. The value of the mineral products of the State in 1908 was \$2,743,434, as compared with a value of \$2,638,587 in 1907. Oregon was one of the few Western States showing an increase in the value of the mineral production in 1908 over that of 1907. The most important mineral in point of value was gold, of which 43,823 fine ounces, valued at \$905,900, were produced in 1908, compared with 59,124 fine ounces, valued at \$1,222,200 in 1907. Next in point of value were clay products, which amounted to \$555,768 in 1908, as compared with \$545,839 in 1907. Coal was produced to the amount of 86,259 short tons, valued at \$236,021 in 1908, as compared with 70,981 short tons, valued at \$166,304 in 1907. The sand and gravel produced in 1908 was valued at \$524,984, as compared with a value in 1907 of \$289,422. Other mineral products of some importance are lime, silver, stone and mineral waters.

The gold production in 1909 was estimated by the Director of the Mint at 34,448 fine ounces, valued at \$712,900. The silver production was 71,100 fine ounces, valued at \$37,000.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 522,000 bushels, valued at \$418,000 from 17,000 acres; winter wheat, 11,235,000 bushels, valued at \$10,449,000 from 535,000 acres; spring wheat, 5,142,000 bushels, valued at \$4,782,000 from 275,000 acres; oats, 10,886,000 bushels, valued at \$5,661,000 from 288,000 acres; barley, 1,984,000 bushels, valued at \$1,309,000 from 63,000 acres; rye, 153,000 bushels, valued at \$153,000 from 9000 acres; potatoes, 7,360,000 bushels, valued at \$4,416,000 from 46,000 acres; hay, 865,000 tons, valued at \$10,120,000 from 422,000 acres. The crop of corn increased considerably in 1909 over 1908, when 440,000 bushels were produced. The acreage increased about 1,000. The winter wheat crop of 1909 was considerably larger than that of 1908, when 10,858,000 bushels were produced. The acreage also considerably increased. The spring wheat crop was larger by nearly 1,000,000 bushels in 1909 than in 1908, while the acreage increased about 15,000. The oat crop was more than one million bushels larger in 1909 than in 1908, when 9,519,000 bushels were produced. The acreage slightly increased. The potato crop in 1909 was nearly twice as large as in 1908, when 4,257,000 bushels were produced. The acreage increased from 43,000 to 60,000. The hay crop in 1909 increased by about 45,000 tons, while the acreage increased by about 8000 acres. A large and increasing area is devoted to the cultivation of apples, prunes and apricots. A number of important irrigation projects carried on by the United States Reclamation Service has greatly assisted the agricultural development of the State in recent years. The number of farm animals in the State on January 1, 1910, were as follows: Horses, 308,000; dairy cows, 174,000; other cattle, 698,000; sheep, 2,581,000; swine, 267,000. The wool clipped in 1909 was estimated at 17,030,000 pounds.

EDUCATION. It is probable that no State in the Union has made greater progress in its public school system during the past few years than has Oregon. At the Alaska-Yukon Exposition, the State won the grand prize for the best general educational exhibit. Two important laws were passed by the legislature of 1909. One of these requires that every rural board must have at least six months of school annually, and a fund of not less than \$300 annually is provided for the smaller districts to use as teachers' salaries. The other law permits a county to establish a county high school fund, and each district or group of districts maintaining a high school up to the standard prescribed by the State Department is entitled to \$40 a pupil for the first 20 high school pupils, \$30 a pupil for the second 20, and \$12 per pupil for all remaining high school pupils. Two counties have already taken advantage of this privilege and most encouraging reports are being received as to the practicability of the law. Each county in the State held the district school officers' convention provided for by a measure passed in 1907. A type of meeting, known as the educational rally, was introduced during the

year by the State Superintendent of Schools. By this system the county superintendent divides his county into six districts, and spends, together with the State Superintendent, a week in visiting and inspecting the schools of the county. At these meetings literary and musical programmes are carried out and addresses are given by the State Superintendent.

Trustees of the fund left by Mrs. Amanda W. Reed for the foundation of an educational institution in Portland, to be known as the Reed Institute, adopted definite plans late in 1909, deciding to establish a college of arts and sciences. For this purpose (approximately) \$2,000,000, which for several years was tied up by litigation, is now available. A central site of at least forty acres is soon to be selected. In their action the trustees followed the advice of Dr. Wallace Buttrick, Secretary of the General Education Board, of New York City, and it is expected, though not promised, that funds from the Rockefeller foundation will largely increase the original endowment. Dr. James Hayden Tufts, head of the department of philosophy of Chicago University, has been mentioned as the probable president of the Reed Institute.

The average daily attendance for 1909 was 95,081, as compared with 94,333 in 1908. The teachers numbered 4453, and of these 3590 were women and 863 men. The average monthly salary of men teachers was \$69.25, and of women, \$51.97. The average monthly salary of rural teachers was \$50.15. The number of high schools has increased to 175, and there were enrolled in these, during the year, 27,532. Completing the public school system are the University of Oregon and the Oregon Agricultural College, the former at Eugene, and the latter at Corvallis. Each institution has shown steady growth.

FINANCE. The biennial report of the State Treasurer for the fiscal years 1907 and 1908 showed receipts for the two years of \$5,770,103. The disbursements for the same period were \$5,527,124, which, with the balance left from the preceding fiscal year, left a total balance on hand September 30, 1908, of \$658,320.

CHARITIES AND CORRECTIONS. Among the charitable and correctional institutions of the State are the State Reform School, School for the Deaf Mutes and the Institute for the Blind at Salem. The appropriations for all the State charitable and penal institutions amount to about \$850,000 annually. The juvenile courts recently established proved to be a wise step and have been a great assistance in helping the reform school for the youth of Oregon.

POLITICS AND GOVERNMENT. On January 19 George E. Chamberlain, Democrat, was elected United States Senator by the legislature. The vote was: Chamberlain 53, Fulton 19, and Cake 17. Senator Chamberlain occupies the unique position of having been elected United States Senator by a Republican legislature. This result was brought about by the operation of the primary laws of the State by which the voters in 1908, at the regular State election in June, indicated Senator Chamberlain, who was then Governor, as their choice for United States Senator. Under the primary law a Senator is nominated at the same time and in the same manner as the State officers and at the succeeding regular election the voters go through the form of electing a Senator. A majority of the legislature (52 members out of 90) had sub-

scribed to a voluntary pledge prior to their own nomination as legislators that they would vote in the legislature for the "people's choice." All the members of the legislature who had subscribed to this pledge (known as Statement No. 1) fulfilled it by voting for Chamberlain. All but one unpledged Republican member voted against Chamberlain. F. W. Benson, Republican, Secretary of State, succeeded Chamberlain as Governor.

As in California, Nevada and other States, measures were introduced into the Oregon Legislature, providing for restriction against Japanese and other Orientals. The measures, however, did not make any considerable progress, as they were killed on February 19 by the Senate, when it adopted a resolution upholding the President's course. Senator Bailey, who introduced the measure, made a speech arguing for the reenactment of the Chinese exclusion act, and for broadening it to include Japanese, Malays, Hindus, and all other Asiatic races. On January 1, the United States Court of Claims announced its findings in the case of the State of Oregon against the United States, and awarded \$200,000 for moneys expended during the Civil War in protecting the adjoining territories of Washington and Idaho. When the Civil War began Oregon was left practically defenseless, the troops, which at that time guarded it against Indian outbreaks, having been taken East. Subsequently local volunteers performed services not performed by the United States, and this award is to compensate the State for these services. In June, the city of Portland held its second election under the initiative and referendum. Thirty-five separate questions and the names of candidates for six offices were submitted. Of the 35 questions, 12 were accepted and 23 rejected. Among the questions accepted were propositions to require holders of franchises to file quarterly reports, for a woman's auxiliary to the Police Department and a proposition to place the burden of proof on all discharged civil service employees. Among the measures defeated were those providing for a vehicle tax ordinance, the prohibition of the use of patented articles or processes in the use of street improvements, a proposition for the payment for water mains by benefited properties, and for the Des Moines plan of city government. The vote for mayor was 18,000, while on the question of referendum it averaged 15,000. Joseph Simon, former United States Senator, and the Republican candidate, was elected mayor. See **ELECTORAL REFORM.**

OTHER EVENTS. In August, 1909, it was announced that the Oregon Trunk Line up the Deschutes cañon into central Oregon, already begun, would be supported by James J. Hill. There are now under construction-contract 109 miles from Celilo, where the Columbia will be bridged for connection with the Spokane, Portland and Seattle Railway, to Madras, and additional survey has been located to Crooked River, 20 miles beyond Madras. Klamath Falls is the projected terminus of the Oregon Trunk, but it is believed that the line will build on into California. It is also probable that there will be a branch from Bend to Lakeview, and an extension east, through Malheur Cañon and across Idaho, to connection with the Burlington. The central Oregon territory to be opened up is the largest district in the United States without railroads, and the de-

cision of Mr. Hill to build this road is regarded as of utmost importance.

The Deschutes Railroad Company, a Harriman corporation, is paralleling the Oregon Trunk up the Deschutes. There are now under contract 130 miles, from Deschutes to Redmond, with probable extension to Odell, where connection will be made with the Natron cut-off of the Southern Pacific to Klamath Falls. It is also believed that the Deschutes Railroad Company will build eastward to connect with the Oregon Short Line at Vale.

The Natron cut-off is being constructed from Klamath Falls to Natron, a distance of 150 miles. Thirty-five miles of this line are under contract at each end, leaving a gap of 80 miles.

Construction is also progressing on the Pacific Railway and Navigation Company's line from Hillsboro to Tillamook. This road, 98 miles long and to cost approximately \$3,000,000, is now 60 to 70 per cent. completed. It is a Harriman property.

The Beaverton-Willburg Line, a branch of the Southern Pacific's West Side division, is also under construction. It is 14 miles long and its cost, including a bridge across the Willametta River, will be \$1,200,000.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: Measures were passed defining and prohibiting corrupt practices at elections. The salaries of public officers are made subject to garnishment. Provision is made for sanitation in hotels; the sale of food-stuffs is regulated, and coöperation with the national commission in the conservation of national resources provided for. State sanatoria for tuberculosis are established, and the 10-hours' law affecting female employees is extended to telegraph, telephone, express and transportation service. An insurance department was established and measures were passed regulating the insurance business and the use of the public waters of the State.

OFFICERS: Governor, Frank W. Benson, Rep.; Secretary of State, _____; State Treasurer, George A. Steele, Rep.; Superintendent of Public Instruction, J. H. Ackerman, Rep.; Adjutant-General, William Finzer, Dem.; Attorney-General, A. M. Crawford, Rep.; Commissioner of Insurance, S. A. Kozier, Rep.

JUDICIARY. Supreme Court: Chief Justice, F. A. Moore; Justices, Thomas A. McBride, Woodson T. Slater, William R. King and Robert Eakin; Clerk, J. C. Moreland—all Republicans.

The State Legislature of 1909 was composed of 23 Republicans and 6 Democrats in the Senate, and 51 Republicans and 7 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

ORGANIC CHEMISTRY. See **CHEMISTRY.**

ORNITHOLOGY. The 1908 *Year Book* contained a reference to experiments on the homing ability of terns, made by Watson, who liberated birds at Cape Hatteras, several hundred miles north of their normal area of distribution, but nevertheless found that they returned to their nesting places in the Tortugas. As a contribution from the Tortugas Laboratory of the Carnegie Institution, Watson

published in 1909 his complete paper embodying the results of his observations and experiments on the noddy and sooty terns of the Bird Key Reservation, about 66 miles west of Key West. The paper is primarily on the psychology of the birds, but many observations are of interest to ornithologists. On this island, about 300 yards wide and 400 long, were found 700 nests of noddy and nearly 9500 of sooty terns. The former were in bushes, and the latter in shallow depressions on the ground. This would give a probable total of over 30,000 adult birds on the island. The birds probably mate before reaching the island, and nest building had begun on May 4. They feed by following the schools of minnows, which, when attacked by other fish, jump above the surface of the water, and are caught by the birds when in the air. In the case of both species the female remains on the nest until the eggs are laid, the male meanwhile feeding her. During incubation, the parent birds alternate in their care for the eggs. By August 1 the birds had all left the island, but the locality where they spend the winter is not known.

Our knowledge of bird migration is still very incomplete, and various workers have suggested that if the birds could be tagged in some way before migration, data could be collected which would put the subject on a more satisfactory basis. The Bird Club of New Haven, Conn., reported that they have been making a systematic attempt at marking birds in this way, but have made no report of their results.

Townsend discussed the use of the wings and feet in diving birds and concluded that progression by both wings and feet was the primitive method, and is to be looked for among young birds. Specialization towards the use of the wings alone leads to a diminution in the size of the wings, and finally to a bird that is flightless in the air. Specialization toward the use of the feet alone is the best adaptation for rapid progression through the water.

The fifteenth supplement to the A. O. U. check list was published in the *Auk* for July, and it was expected that the complete third edition would be published early in 1910.

In connection with bird protection it is interesting to note that in October, 1908, the Territory of Papua passed an act prohibiting the taking out of the Territory the plumage of birds of paradise, goura pigeons and "osprey" (egret). In June, 1909, the Governor-General of Australia issued a proclamation making unlawful the importation into the Commonwealth of the plumage of any such birds except with the written permission of the Collector of Customs of the Territory of Papua.

At the American Museum of Natural History in New York City, a series of habitat groups of birds, begun some years earlier, was completed in 1909. The groups were erected under the supervision of F. M. Chapman, and embody the results of many expeditions to secure not only the specimens and nests, but photographs and paintings of their normal environment. The Alexander Alaska expedition of the University of California collected 532 bird skins, of which 6 were new species and have been described by Joseph Grinnell. Knowlton published in 1909 his *Birds of the World*, giving an account of every known species both living and fossil.

OSGOOD, HENRY BROWN. An American military officer, died March 12, 1900. He was born in Maine in 1843 and served as a volunteer in the Civil War until 1863, when he was appointed to the United States Military Academy. Graduating in 1867, he was made first lieutenant in 1870; captain, 1889; major, 1897; and colonel and assistant commissary-general in 1905. In 1907 he was retired as a brigadier-general. General Osgood was awarded a medal of honor in 1865 for voluntarily remaining in service during the invasion of Pennsylvania in 1863 after his term had expired.

OSMOTIC PRESSURE MEASUREMENT, DIRECT. See CHEMISTRY.

OSTHOFF, HERMANN. A German comparative philologist, died in May, 1900. He was born in Westphalia in 1847; studied at Bonn, Tübingen and Berlin, and became in 1877 professor of Sanskrit and comparative grammar at Heidelberg. He was one of the founders and editors of *Morphologische Untersuchungen auf dem Gebiete der indogermanischen Sprachen* (1878-95); *Vom Suppletivwesen der indogermanischen Sprachen* (1899); *Etymologische Parerga* (1901) and other works.

OSTWALD, WILHELM. A German chemist, awarded on December 9, 1909, the Nobel prize for chemistry. He was born in Riga in 1853 and was educated at Dorpat, where he became a lecturer in 1878. In 1882 he was made professor in the Polytechnicum of Riga and from 1887 to 1896 he was professor of chemistry at Leipzig. In 1905-6 he visited the United States and lectured at Harvard University under an arrangement for the exchange of professors between American and German universities. As an investigator in physical chemistry and chemical affinity he is particularly well known. His researches have concerned, among numerous subjects, the electric conductivity of organic acids, the parallel existing between the volume of such acids and their power of chemical reaction, and the color of ions. He is the author of important works on physical chemistry, thermo-dynamics, electro-chemistry and the foundations of inorganic chemistry, besides several works of a scientific literary character, including one published in 1907, on *Personality and Immortality in the Annals of Natural Philosophy*. He is a member of all the leading scientific societies in the world.

OTIS, ELWELL STEPHEN. An American military officer, died October 21, 1909. He was born in Frederic, Maryland, in 1838, and two years later his family removed to Rochester, N. Y., where he graduated from the University of Rochester in 1858. He studied law at the Harvard Law School and graduated in 1861. He practiced law in Rochester until 1862, when he recruited a company of the One Hundred and Fortieth New York Volunteers and went to the war as a captain. He served in this regiment throughout the war, and took part in many important engagements, among them Gettysburg and the Wilderness. He was wounded in the battle of Chapel Hill, near Petersburg, Va. He rose to the rank of lieutenant-colonel, and on his discharge in 1865 received the brevets of colonel in the regular army and brigadier-general in the volunteers. On the formation of the Twenty-second Regular Infantry in 1866 he was appointed lieutenant-colonel and in 1880 was promoted to colonel. From 1867 to 1881 he

served in the West and took part in several Indian campaigns. He organized an infantry and cavalry school at Fort Leavenworth and in 1893 he was made a brigadier-general, being promoted over the heads of many officers who were his seniors. He spent several months assisting in the revision of the army regulations. On the outbreak of the Spanish War he was appointed major-general of volunteers and was sent to the Philippines under General Wesley Merritt, after having directed the work of organizing and equipping troops embarking from San Francisco. In August, 1898, he was put in command of the Department of the Pacific and was appointed military governor of the Philippines. During the hostilities following the rebellion of Aguinaldo in 1898 General Otis commanded at Manila. He performed the duties of military governor until May, 1900, when he was recalled. In June of the same year he was promoted to major-general and placed in command of the Department of the Lakes at Chicago. In 1902 he was retired for age.

OXONE. A proprietary name applied to fused sodium peroxide, containing a small percentage of a catalytic agent, whose identity is not divulged. It is said to yield its entire content of available oxygen upon contact with water, and is designed to furnish a cheap means of producing oxygen for therapeutic use.

OXY-ACETYLENE TORCH. See CHEMISTRY, INDUSTRIAL, paragraph on *Metallurgy*.

OXYGEN. See CHEMISTRY, INDUSTRIAL.

OXYRHYNCHUS, EXCAVATION AT. See ARCHAEOLOGY.

PACKARD, WILLIAM ALFRED. An American scholar and educator, died December 2, 1909. He was born in Brunswick, Maine, in 1830, and graduated from Bowdoin College in 1851. He taught in Andover Academy at Andover, 1852-3, and was a tutor in Bowdoin in 1853-4. He graduated from the Andover Theological Seminary in 1857 and in 1857-8 studied at the University of Göttingen. He was instructor of modern languages at Bowdoin, and professor of modern languages in that college 1850-63, and professor of Greek language and literature at Dartmouth from 1863 to 1870. From 1870 to the time of his death he was professor of Latin language and literature at Princeton University. The last years he was professor emeritus. He revised, with translations from later editions, Curtius's *History of Greece*, and wrote memorial sketches of lives of earlier Princeton presidents and professors, and articles and reviews of books and periodicals.

PAGEANTS. See CENTENARIES.

PAINTING. Landscapes and marines proved, as usual, to be superior at both of the New York Academy exhibitions of 1909 to portrait and figure work. In the spring show Mr. Arthur Hoerber's "Evening," Mr. Child Hassam's "Sunlight through Leaves," Mr. Granville-Smith's "October Birches," Mr. Lathrop's "Pasture Brook," and Mr. Ben Foster's "Early Moonrise," which took the Inness gold medal, were all of uncommon merit. Also well worthy of mention were Mr. Paul Dougherty's "Golden Moon," Mr. Walter Palmer's "Winter Wizard," Mr. Gustav Wiegand's "On the Threshold of Spring," and Mr. G. H. Bogert's "Break of Day." In figure work Mr. Hawthorne, one of

the most vigorous among American figure painters, showed in his "Lemon Girl" that he can evoke picturesque charm as well as rough movement. His "Return from the Catch," one of the vivid sketches of which he is so fond, was a stirring portrayal of marine life.

Mr. Albert L. Groll, who in the last few years has made great strides as a painter of the American desert, showed in another picture, "Silver Clouds," an impressive study of Arizona color. "A Lowering Day" was still another achievement in which endless stretches of plain and sky were cleverly portrayed.

Mr. Emil Carlsen's "Surf" suggested admirably the vast spaces of the ocean. "Off the Low Rocks" by Mr. Frederick J. Waugh, and Mr. Redfield's "Harbor of Boulogne" were the most notable marines shown.

In portraiture, of which there was but a small showing, Mr. Sargent's picture of Countess Szechenyi (Miss Vanderbilt) hardly did the American master justice, notwithstanding its admirable detail. It lacked brilliancy. Upon the other hand Mr. Sergeant Kendall's "Portrait of Miss H. H.," a figure of appealing charm, showed this artist at his best. Mr. Orlando Rouland's "Catherine" was a well poised and well painted composition. Mr. Irving R. Wiles had a decorative portrait of Mlle. Gerville-Réache as Carmen that barely escaped the commonplace. Other portrait work in the exhibition that calls for mention was by Miss Beaux, William H. Hyde, H. Stanley Todd, and J. Mortimer Lichtenauer.

Figure work of some merit included Miss Genth's sunlight study, "In the Arbor"; Miss Cassatt's "Children Playing with a Cat," crude in tone, but fairly spirited; Charles Bittinger's "After the Ball" (second Hallgarten prize), in which lamplight and early dawn are contrasted as they play upon the figures of two women in evening dress; George De Forest Brush's "Family Group," of familiar material and technic; Andrew Schwartz's "Primitive Family," after the manner of Puvis de Chavannes. F. B. Williams's "Court of the Beloved," and Hugo Ballin's "The Lesson," both showed ambition and hard work. The Shaw prize for the best work by an American woman was awarded to Mrs. A. A. Wiegand for "A Woman in Blue," the Clarke prize to Miss Lydia F. Emmet for "Playmates," and the first Hallgarten prize to Daniel Garber for his "Horses."

The most clamorous piece of work upon the walls of the winter academy was Mr. Boldini's portrait of Mrs. Clarence Mackay, almost a caricature in its over-accentuation. It was a restless vision of crying color, interesting enough as a fancy sketch, but too sensational for everyday purposes. By contrast, the most vivid work of Mr. Robert Henri's "Girl with Parasol" seemed tame, and Mr. Sargent's "Gitana" was reserve, itself. Mr. Ben-Ali Haggin's frankly theatrical ballet girl, "Little White Dancer," was in its way quite as clever, technically, as Mr. Boldini's portrait and marked a step in advance. John W. Alexander's portrait of the late Richard Watson Gilder and Brush's portrait of Henry George both had dignity. Mr. Alexander's "Sunlight," the full-length figure of a graceful girl bathed in misty light, the whole a symphony in soft, shifting pale yellows, had the place of honor in the exhibition and deserved it. Sergeant Ken-

dall's "Psyche," a delightful study of a young girl, has been bought by the Metropolitan Museum.

Mr. Montague Flagg's "Portrait of My Wife," which took the Proctor prize, suggested the best period of Dutch painting in the vigor and quiet strength of drawing and refined color. Strong also, but with a touch of ultra-modern exaggeration never absent from this painter's portraits, was Robert Henri's representation of Mrs. William R. Clarke. Irving R. Wiles hardly did himself justice in his "Girl with the Horse," and the same must be recorded of Mr. Cushing's latest rendering of the red-haired young woman of whom he has made so many and better pictures. Mr. Wiles gave a better account of himself in the portrait of his fellow artist, Walter Palmer.

Elliot Dangerfield's "Pearls of the Morning," a group of ideal nudes, had charm of color and graceful form, and Mr. Baer's graceful reclining nude figure had also decided merit. Some figure work by Mr. John E. Johansen, two musicians playing in a somberly lighted room, and a clever confection by Mr. Frieseke called "Lady Trying on Hat" were both of more than average merit.

In landscape there was nothing in the winter exhibition superior to Ben Foster's "Moonrise," in which he returns to a theme he always handles with consummate skill and delightful poetry. Mr. Gardner Symons took the Carnegie prize with his "Opalescent River," a stream full of ice, that made one feel the rush and sweep of the water. In a picture of an army of men and steam shovels at work upon an excavation at night George Bellows showed much rude energy. Charles Warren Eaton, Bruce Crane, Redfield, Ranger and Alden Weir were also represented by work of characteristic merit. Paul Dougherty's "Black Squall" was perhaps the best marine shown.

Two exhibitions of far-reaching influence were held in New York during the year—that of work by the Spanish painter, Sorolla-y-Bastida, and the show of Dutch pictures gathered in the Metropolitan Museum of Art for the Hudson-Fulton celebration. Sorolla's 350 pictures and sketches showed the work of years by a man who ranks high as an open-air painter. Admirable drawing, the faculty of suggesting life and movement by few strokes, an astonishing gift for color and the representation of light made the exhibition as interesting to artists as to the public. Some of his portraits were admirable in their vivid quality, but the most notable offerings of the distinguished foreigner were such pictures as that of oxen drawing fishing boats through the surf, and the beach scenes. Some of the Sorolla pictures have been acquired by the Metropolitan Museum.

The Dutch exhibition was the finest ever made in this country. More than a score of Rembrandts, half that number of Hals portraits and splendid examples of Maes, Ruysdael, Hobbema, Cuyp, Vermeer, and Jan Steen were loaned by collectors. About 150 pictures, most of them of importance, were shown. In the list of Rembrandts was the artist's portrait of himself, owned by Henry C. Frick. Mrs. Huntington's "The Savant," Mrs. H. O. Havemeyer's "The Gilder," W. K. Vanderbilt's "Noble Slav," J. Pierpont Morgan's two Hals portraits of Bodolphe and his wife were equal

in interest to any pictures in this extraordinary exhibition.

The "Ten American Painters" gave their yearly exhibition as usual with some excellent work, particularly by Benson, Hassam, Tarbell, Metcalf and Chase. In the Water Color Club exhibition held in November F. Louis Mora had an interesting group of Spanish sketches. The Beal prize was awarded to Miss Hilda Belcher for a portrait. Hassam, F. Hopkinson Smith, Ritschel, Dufner, Alexander Robinson and Miss Alice Schille were among the contributors to the Water Color Society show held in May.

Interesting exhibitions were also given during the year of work by William M. Chase, showing the artist's versatility as painter of portraits, still-life and even landscapes. The growth of Chase's art from the Munich days of 1870 to the present was illustrated in some fifty pictures. A retrospective exhibition of the work of John W. Alexander at the National Arts Club, brought together more than half a hundred canvases by one of the foremost of American painters. Among the representative pictures shown were Mr. Alexander's portraits of Joseph Jefferson, Dr. McCosh and Rodin, the French sculptor.

The opening in November of Boston's new Museum of Fine Arts added a noble building to the country's art museums. Although it is twice as large as the old building in Copley Square, it is but a part of the monumental structure that the art lovers of the city plan to erect. The architect, Guy Lowell, accomplished wonders in making what is part of a whole appear as if complete in itself. The attempt to make the different halls architecturally in harmony with the objects shown in them has led to interesting results. Thus one gets something of the atmosphere of Egypt, Persia, Greece, Rome, from the setting and environment as well as from the art treasures displayed.

Edmund C. Tarbell took the first prize of \$1500 at the Carnegie Institute May exhibition in Pittsburg with his "Girl Crocheting," an exquisite study in subdued lights, with a figure of much grace. The second prize went to an Englishman by adoption, George Sauter, for "The Bridal Morning," an award that caused much astonishment; drawing, color, sentiment seemed commonplace to all but the jury. Among the best work by Americans were Gari Melcher's "Morning Room"; Sergeant Kendall's "Mischievous"; Miss Genth's "Spring"; and Charles W. Hawthorne's "Mother and Child."

A large decoration in the spirit of de Chavannes, a summer harvest scene by Henri Martin, was one of the impressive foreign contributions. Also there were René Menard's "Judgment of Paris," and Lucien Simon's "Procession in a Thunderstorm," both pictures of importance.

In the Pennsylvania Academy exhibition opened in January, the Temple gold medal was awarded to Frederick P. Vinton of Boston for his portrait of Carroll D. Wright. John S. Sargent received the Beck gold medal for his portrait of Miss Townsend. The Lippincott prize fell to Thomas P. Anschutz for his study of a young woman examining a Tanagra figure.

The painters well represented were Melchers, Frieseke, Henri, Benson, Hoerber, Cornoyer, Tanner, Schwartz, Redfield, Garber, Ericson,

Hassam and C. C. Cooper. About 300 pictures were shown, of which one hundred came from Europe.

At the Paris Salon of the Société Nationale in May were shown the splendid panels painted by René Menard for the Ecole de Droit, his greatest decoration achievement. In the same field were the panels for the Petit Palais, by Albert Besnard, mythological subjects treated with dazzling color. Alfred Roll, Gillot, Bouquet de Monvel (who had some admirable Jeanne d'Arc designs for the Domrémy Church), La Touche, Gervex and Billotte were among the conspicuous contributors. Of Americans, Sargent sent nothing, but there was praise for Shannon's "Enfant Bacchus" and for a picture by Walter Gay. Eugene Ullman, Montgomery Roosevelt, and Karl Frieseke were among the American exhibitors. At the Salon des Artistes Français some pictures by the Spaniard, Zuloaga, attracted much attention. There were more than one hundred contributions by Americans, but none of sensational merit. W. E. Schofield, Oscar Miller, H. S. Hubbell, Walter MacEwen and Seymour Thomas were in the list.

In London's International show, opened in February, Mr. Sauter had an effective "Resurrection," of modern feeling, but interesting. Ricketts, Shannon, Nicholson and Pryde were the Englishmen whose work made an impression. Of the Americans, Miss Cecilia Beaux, with a full length "Mother and Child" won high praise.

PALMER, WILLIAM JACKSON. An American railway official and philanthropist, died March 13, 1909. He was born in Kent county, Delaware, in 1836, and was educated privately. He served throughout the Civil War as captain, colonel and brevet brigadier-general of volunteers. A Congressional medal of honor was awarded him for gallant services. At the close of the war he engaged in railroad business. He was made secretary of the Kansas Pacific Railroad Company and helped build that road to Denver. He then built the Denver and Rio Grande road, and was its president until 1883. In that year he began the construction of the Mexican National and the Rio Grande Western. His holdings in railroads were, about 1900, sold, and he retired from active business. He gave his subordinate employees \$1,000,000 on his retirement, and presented Colorado Springs, Colo., his home city, with park land valued at \$1,000,000. General Palmer left a large fortune, valued at over \$10,000,000.

PANAMA. A republic occupying the Isthmus of Panama. The capital is Panama.

AREA AND POPULATION. The area of the seven provinces constituting the republic is variously estimated at from 31,570 to 33,776 square miles. By the treaty of November 18, 1903, the United States guaranteed the independence of the republic, and Panama granted to the United States, in perpetuity and with sovereign rights therein, a strip of land (the Canal Zone) extending to a width of five miles on either side of the Panama Canal. In 1909 the population was estimated at 419,029, mostly a mixed race of Spanish, Indian, and negro origin. There are about 40,000 negroes and 3000 Chinese. The principal cities are Panama and Colón (Aspinwall), with 35,664 and 15,271 inhabitants respectively in 1908. Immigration is encouraged, and a law of Janu-

ary 2, 1909, throws open large tracts of rich lands to the acquisition of foreigners. The reported number of primary schools is 165, with 9181 pupils. There are a few high schools and institutions for technical instruction. The reorganization of public instruction is to be undertaken.

PRODUCTION, COMMERCE, ETC. The soil of Panama is exceptionally fertile, making possible the successful cultivation of many tropical products. The most important crop is bananas. Other products are cacao, sugarcane, coffee, rice, corn, yams, sweet potatoes, coconuts, vanilla, and rubber. The forests contain valuable hard woods, dye and resinous woods, and medicinal plants. Panama has numerous mineral deposits, but they have been only slightly exploited. A little gold is mined. Some mother-of-pearl and turtle shells are gathered. The government has recently entered into contracts providing for the erection of a sugar mill and of two sugar refineries.

In 1907 the imports, exclusive of non-dutiable supplies for the Panama Canal, were valued at \$9,564,450, and in 1908, \$7,806,812; exports, \$1,960,666 and \$1,757,136 respectively. Of the imports in 1908, vegetable and agricultural products amounted to \$3,138,197; mineral products, \$788,069; wines and liquors, \$675,703. Of the export value in 1908, over 70 per cent. was represented by bananas, the shipments of which aggregated nearly 4,000,000 bunches; the total export value of vegetable products was \$1,539,395; animal products, \$135,207; mineral products, \$79,621. In 1907 the non-dutiable imports for use by the Isthmian Canal Commission were valued at \$13,468,359. Both the import and the export trade is principally with the United States, although in 1908 Great Britain ranked first in the import of textiles. According to American statistics the imports of the United States from Panama during the fiscal year ending June 30, 1909, were valued at \$1,676,994, and the exports to Panama (including non-dutiable goods for the Canal Commission), \$16,797,530.

The railway from Colón to Panama, 47 miles, carried in 1908 westbound merchandise valued at about \$9,500,000, and eastbound merchandise, over \$1,000,000. In 1909 it was announced that an overland cable had been established between Colón and Panama, thus affording all-cable communication from the west coast of South America to the United States and Europe.

FINANCE AND GOVERNMENT. For the period January 1, 1909-December 31, 1910, the estimated revenue and expenditure were \$4,492,000 and \$6,877,470 respectively. The revenue is derived principally from customs and excise. The monetary unit is the gold balboa, equivalent to the American dollar.

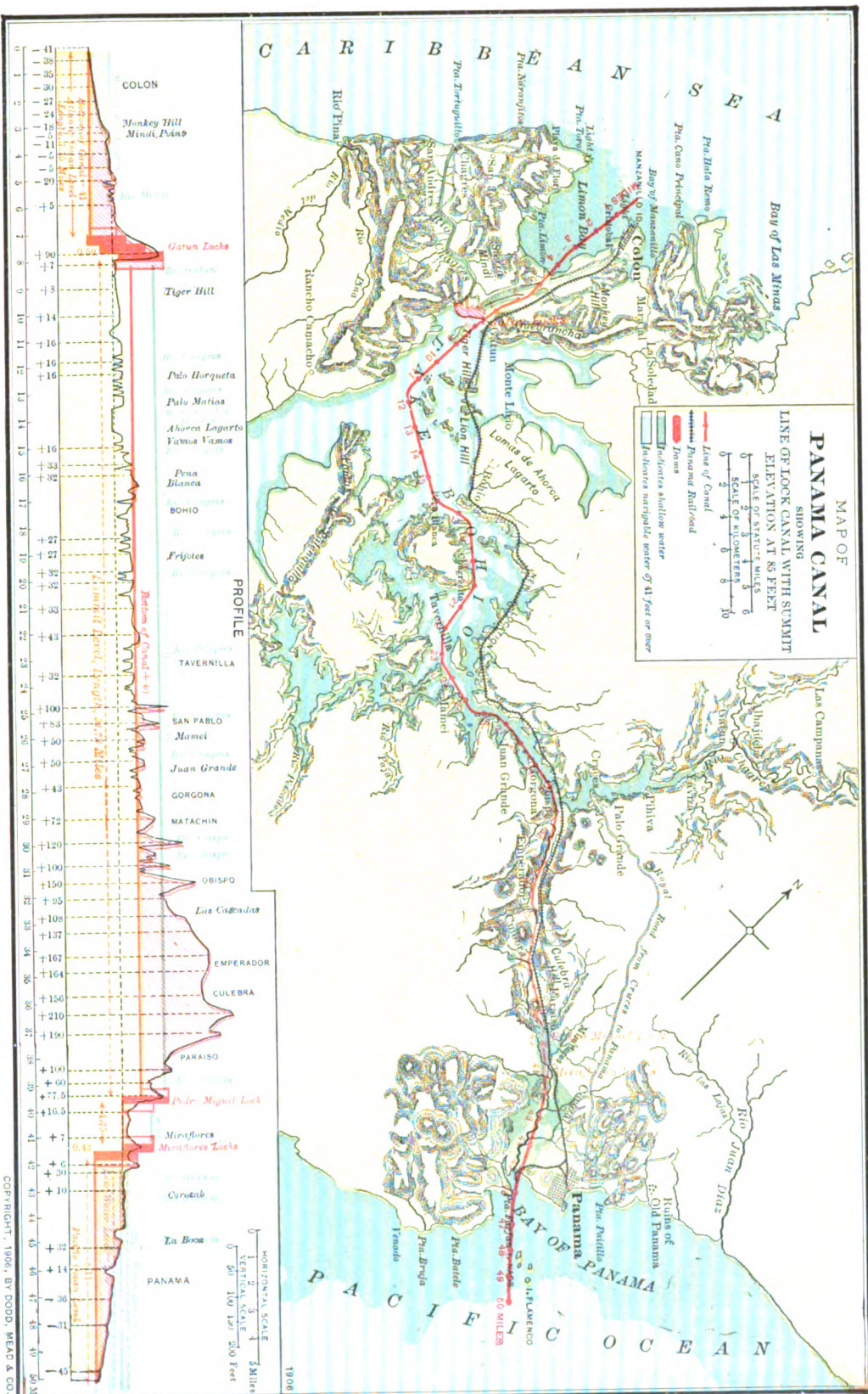
Under the Constitution of February 13, 1904, the executive authority is vested in a president, who is elected by popular vote for a term of four years and is assisted by a cabinet of five members. The legislative power devolves upon the unicameral National Assembly, composed of 32 members elected for four years by popular vote. The provinces are administered by governors appointed annually by the President. The President in 1909 was José Domingo de Obaldia, who assumed office October 1, 1908.

PANAMA CANAL. The history of the Panama Canal during 1909 was one of steady

progress. Although the grand total of excavation was somewhat less than that of 1908, as will be noted in the table below, this was due, not to the diminution of effort, but to the nature of the material excavated.

In the latter part of 1908 and in the early part of 1909 there was a great deal of criticism in Congress and outside as to the construction of a lock canal instead of a water level canal. It was alleged that the plans whereby the lock canal is being constructed were not the proper plans upon which the canal should be dug, but rather that the water level canal was the project which should originally have been undertaken. As a result of this criticism, Mr. Taft, who was at the time President-elect, visited the canal at the request of President Roosevelt, accompanied by a number of the most eminent American engineers. It was understood that if Mr. Taft and the engineers were satisfied with the plans under which the canal was being built, the question would not again be seriously raised and the work would be pushed to completion within the next six years. After a careful examination of the work in progress, Mr. Taft and the engineers declared the present plans to be entirely satisfactory, apart from certain modifications in detail, such as the lowering by some feet of the Gatun Dam. They declared, furthermore, that every dollar thus far expended in canal construction had been honestly spent. President Roosevelt at once transmitted this report to Congress with his own hearty concurrence in the conclusions.

On July 1, 1908, by direction of President Roosevelt a complete reorganization of the work was inaugurated, and this was brought about gradually through the year with a view to concentrating effort, to expediting the transacting of business, to securing better coördination, to fixing more definitely the responsibility in any particular case, and to reducing the cost of administration. In order to bring about these results the sub-departments of the Department of Construction were abolished and three construction divisions were substituted: The Atlantic Division, extending from deep water in the Caribbean to include the Gatun locks and dam; the Central Division, extending from Gatun Dam to Pedro Miguel locks; and the Pacific Division, extending from Pedro Miguel locks to deep water in the Pacific. To these divisions were also assigned municipal improvements and the construction of buildings prior to July 1, 1909. On the latter date all work of construction and repair of buildings was transferred to the Quartermaster's Department. The division engineers also took charge of the execution of all sanitary engineering work that might be required by the Sanitary Department. As a result of these changes, the department of municipal engineering, motive power and machinery, and building construction as well as the construction forces of the Sanitary Department were eliminated. The main work connected with motive power and machinery was assigned to a new division called "Mechanical Division," which reports directly to the chief engineer. The work formerly embraced in the departments of labor, quarters and subsistence was subdivided and assigned to two new departments, the Quartermaster's Department and the Subsistence Department, the latter taking over the subsistence of employees, the manage-



ment of hotels, messes and kitchens and the control of the Panama railway commissary. A standard wage scale for employees on the silver rolls, that is the unskilled employees, was adopted and put into effect. A similar wage scale for employees on the gold roll was inaugurated during the year.

During the year 1909 there was no change in the membership of the Isthmian Canal Commission, except for the resignation in December of J. S. C. Blackburn, head of the Department of Civil Administration. The Commission at the end of the year was composed as follows: Lieut. Col. George W. Goethals, Corps of Engineers, U. S. A., Chairman and Chief Engineer; Lieut. Col. H. F. Hodges, Corps of Engineers, U. S. A., Assistant Chief Engineer in charge of the First Division; Lieut. Col. D. D. Gaillard, Corps of Engineers, U. S. A., Division Engineer of the Central Division; S. B. Williamson, Division Engineer of the Pacific Division; C. M. Saville, Assistant Engineer in charge of the Third Division; Mayor E. T. Wilson, U. S. A., Subsistence Officer, in charge of the Subsistence Department; W. W. Warwick, Examiner of Accounts; Edward J. Williams, Disbursing Officer; Col. W. C. Gorgas, Medical Corps, U. S. A., Chief Sanitary Officer, Head of the Department of Sanitation; Joseph Bucklin Bishop, Secretary.

In December, 1909, a measure was introduced into the House of Representatives providing for the abolition of the Isthmian Canal Commission, and placing the full authority for the administration of the Canal Zone and the prosecution of the work on the Canal on one official under the direction of the President.

The Canal excavation to the end of 1909, including that done by the French companies and by the Americans, together with the excavation done in the several divisions, is shown in the table below:

work in certain sections, and because in wet excavations the dredges encountered some difficult conditions. While 1908 is the record year as regards the total amount of excavation, the highest point reached in a single month was that in March, 1909, when for the first and only time the four million cubic yard limit was reached and passed, with a total of 4,062,632 cubic yards, including 182,295 cubic yards of "plant" excavation. The falling off in excavation in 1909 from 1908 was 1,241,467 cubic yards in dry excavation and 779,102 cubic yards in dredging. Of the total dry excavation in 1909 there were taken out in the territory of the Central Division, which includes Culebra Cut and the Gatun Lake region, 18,299,526 cubic yards.

In Culebra Cut where the excavation was continued on practically the same scale as in 1908, the amount excavated was 14,579,838 cubic yards in 1909, as compared with 13,914,326 cubic yards in 1908. Although it is considered that the maximum excavation in the Cut is that of March, 1909, it is expected that there will be little if any falling off in the total excavation in this part of the work in 1910. The work of widening the channel between Las Cascades and Paraiso, a distance of four and a half miles, from 200 to 300 feet at the bottom, was authorized in October, 1908, and during 1909 the excavation was carried on with this end in view. The consequent opening up of new banks caused a number of slides which were a source of inconvenience during the rainy season. The completion of the drainage system by opening the Obispo Diversion and installing pumps at Bas Obispo were another feature of the Culebra Cut in 1909.

At the Atlantic and Pacific entrances to the Canal the dredges have made, but not completed, a channel over five miles into the land, and the Pacific entrance was so far advanced

	Cu. Yds.
By French Companies.....	78,146,960
By Americans—	
Dry excavations.....	58,225,302
Dredges	36,744,085
Total	94,969,387
May 4 to December 31, 1904....	243,472
Jan. 1 to Dec. 31, 1905.....	1,799,227
Jan. 1 to Dec. 31, 1906.....	4,948,497
Jan. 1 to Dec. 31, 1907.....	15,765,290
Jan. 1 to Dec. 31, 1908.....	37,116,735
Jan. 1 to Dec. 31, 1909.....	35,096,166

Excavation in Territory of Present Divisions May 4, 1904, to December 31, 1909.

Divisions	Amount excavated. Cubic yards—Total	Estimated amount yet to be excavated. Cubic yards—Total
Atlantic—		
Dry excavation	6,412,024	3,149,887
Dredges	16,158,740	17,356,659
Total	22,570,764	20,506,546
Central—		
Culebra Cut	41,532,011	36,510,284
All other points	7,703,576	4,043,622
Total	49,240,587	40,553,906
Pacific—		
Dry excavation	2,572,691	3,357,889
Dredges	20,585,345	15,278,866
Total	23,158,036	18,636,755
Grand totals	94,969,387	79,697,207

As will be seen from this table the grand total of excavation in 1909 was 35,096,166 cubic yards. This was 2,020,569 cubic yards less than the grand total of 1908 for the reason that the field of operations in dry excavation had been narrowed by the completion of the

on February 1, 1909, that steamships began to use that portion of the canal.

At Gatun Locks, the preparatory work of installing a concrete mixing and handling plant was completed and the laying of concrete foundation for a permanent plant was begun

on August 24. From that time there was a steady increase in the amount of concrete laid each week, due to increasing effectiveness of the plant in its operation. Up to the close of the year 116,186 cubic yards of concrete had been laid, and the daily average had increased from 459 cubic yards in September to 1672 in December, while in one instance over 2000 cubic yards were placed in one day of twelve hours. The estimated amount of concrete necessary for completing these locks is 2,096,000 cubic yards.

The hydraulic fill between the rock toes of Gatun Dam was begun on September 24, 1908. From one to three 20-inch suction dredges were engaged during 1909 and they pumped 2,044,992 cubic yards of selected material into the dam. The dry fill amounted at the end of the year to 2,515,524 cubic yards, the total being 4,560,516. The estimated fill to be made by the hydraulic method is 20,000,000 cubic yards. On February 17, 1909, by order of President Roosevelt, the proposed height of the dam was reduced from 135 feet above sea level to 115 feet, which will make the top 35 feet above the normal level of the water impounded in Gatun Lake.

Shortly after the laying of concrete, with a permanent plant, was begun at Gatun Locks; a temporary plant was put into operation at Pedro Miguel and the laying of concrete in the locks at that point was begun. This temporary plant laid 33,994 cubic yards between September 1 and December 31. The estimated amount to be placed at this point is 992,600 cubic yards. The construction of the earth dam at Pedro Miguel was continued during the year. At Miraflores excavation in the upper lock chamber was practically completed during the year. Excavation on the lower lock chamber was continued and the work of building storage trestles for the cantilever concrete mixing and handling plant was begun. A total of 557,587 cubic yards of filling had been placed in the dam at Miraflores Locks up to December 31, 1909.

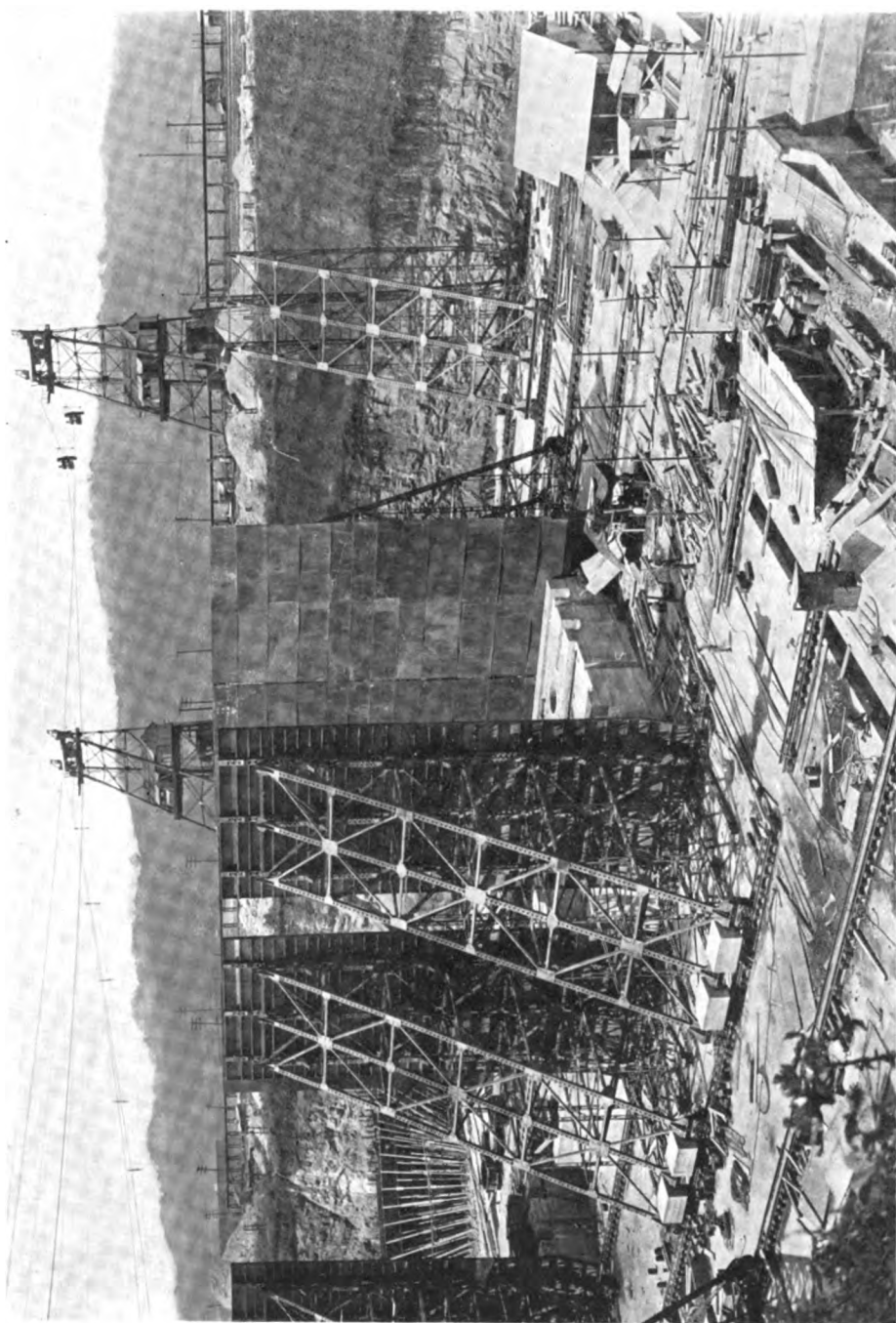
COST OF THE CANAL. The original cost of the canal as authorized by the act of June 28, 1902, aggregated, including sanitation and police, \$144,233,358, and by a modification of the plan the cost for engineering and construction, exclusive of the purchase price, the cost of sanitation and civil government and the interest, was fixed at \$139,705,200. In the preparation of this estimate the same unit prices were assumed as were adopted by the Board of 1899 and 1901. In the interval, however, wages had increased and the cost of materials and manufactured articles had risen. Conditions in the United States and on the Isthmus made it necessary to increase the wage scales from 30 to 60 per cent. over those paid in the United States for similar classes of work in order to induce the requisite class of laborers to come to the Isthmus. Moreover the provisions of the 8-hour law were made applicable to the Isthmus. As the result of these conditions the unit prices were materially increased. Various changes had also been made in the adopted plan, increasing the quantity of work to be done. In addition more detailed surveys and plans than were originally available had been made and the work had increased sufficiently to give reliable data relative to unit costs. This enabled a revised estimate to be prepared and submitted at a hearing before

the Committee on Appropriations in the House of Representatives in February, 1909. This estimate showed that nearly 50 per cent. more work is necessary in order to build the canal as increased by modifications of the original plans than was contemplated by the original estimate, and that the unit prices due to labor conditions, cost of materials and gratuities given to employees have been increased about 20 per cent. The estimate as prepared showed that the total cost of engineering and construction alone will amount to \$297,766,000, to which, if the purchase price, the estimated cost of sanitation and civil government be added, there results the sum of \$375,201,000 as the total cost of the canal.

The total appropriations by Congress up to the end of the fiscal year 1909, amounted to \$176,432,468. Of this, \$50,000,000 included the purchase of canal rights in 1902, \$40,000,000, and the purchase of the Canal Zone rights in 1904 for \$10,000,000. The total expenditures for the fiscal year 1909 were \$30,856,079. Of this sum, \$17,593,801 were expended in the Department of Construction and Engineering, \$7,979,142 on the plant account, \$1,683,824 by the Department of Sanitation, \$714,362 by the Department of Civil Administration, \$1,929,881 by the Quartermaster's Department, and \$981,518 in general expenses.

LABOR. Labor on the Isthmus is divided into two classes, skilled and unskilled. The skilled labor is recruited from the Washington office of the Isthmian Canal Commission. During the year there were 1093 new skilled employees employed on the Isthmus and 884 were re-employed. The unskilled labor showed a steady increase during the year. It reached the maximum on April 28, when a total of 33,699 men were actually at work for the Commission and the Panama Railroad. This is the largest force on record during either the French or American administration. During the fiscal year 741 Europeans and 1892 West Indians were brought to the Isthmus, a decided increase over the preceding year. The force of European laborers has decreased, none having been brought to the Isthmus since September, 1908. During the year there was a movement to South America. Efforts to recruit the force from Europe have been abandoned and the recruiting agent has been withdrawn. As emigration to Panama has been prohibited by the Spanish government it is impossible to obtain recruits from that country. The bulk of the unskilled labor is drawn from the islands of the West Indies.

ISTHMIAN CANAL ZONE. The civil government of the Isthmian Canal Zone is in the hands of the head of the Department of Civil Administration. Several important measures were passed by Congress in 1909 affecting the Canal Zone. These include a provision of the Appropriation act, approved March 4, 1909, respecting the use of local revenues of the zone, and the act approved February 27, 1909, relating to the use, control and ownership of lands in the Canal Zone. Naturally the chief relations of the Canal Zone outside its relations to the United States are with the Republic of Panama and chiefly with the cities of Panama and Colón. These relations during the fiscal year continued satisfactory. The question of sanitary work in the cities of Panama and Colón, the removal of sand from Panaman territory for use in the construction of Gatun Locks, the purchase by the United States of



Photograph by Underwood & Underwood, New York

THE MONOLITHS FOR THE LOCK WALLS AT GATUN AS THEY APPEAR FROM THE TOP OF THE LOCK SITE
THE PORTABLE STEEL FORMS FOR THE CONCRETE ARE SHOWN
PANAMA CANAL

land at Porto Bello and the stationing there of Zone police, the enactment and enforcement of legislation prohibiting the soliciting of labor upon the Isthmus of Panama, were among the matters which came up during the year with the officials of Panama and were satisfactorily adjusted.

An Act of Congress, approved February 27, 1909, provides for leases of public land in the Canal Zone for a period not to exceed twenty-five years. On June 30, 1909, there were 2103 leases in force, of which 1615 were for building lots, 482 for agricultural land and six for building. During the year \$98,970 were collected on account of general taxes and licenses.

During the year the schools of the Canal Zone were reorganized and systematized. For white children, twelve schools were maintained and for colored children, seventeen. The enrollment of white children is about 700 and of colored about 1000. Two high schools are also provided, one at Culebra, and one at Cristobal.

The judicial system of the Isthmian Canal Zone includes three circuit judges, who together form a Supreme Court. In the circuit courts criminal cases were filed against 398 persons during the year, of whom 204 were convicted and 55 acquitted. In the district courts criminal cases were filed against 6025 persons, of whom 4646 were convicted.

SANITATION. The supervision of the Sanitary Department extends from the Canal Zone to the terminal cities, Panama and Colón. The work includes the collection and disposal of garbage, the cutting of grass and brush, and sanitary drainage and oiling, but under the reorganization referred to at the beginning of this article, this work, except oiling, was transferred to other departments, the Sanitary Department exercising general supervision and designating what work shall be done in order to accomplish certain desired ends. In the terminal cities the work consists of inspection, fumigation, disinfecting, grass cutting, surface drainage and oiling undrained areas. In addition the Sanitary Department has charge of the hospitals and of quarantine. The health conditions on the Isthmus during the year showed an improvement over the preceding year. The total number of admissions of employees to hospitals and sick camps, including those sick in quarters, amounted to 46,194, representing for the year 23.49 as the number of men sick daily out of every thousand names on the pay rolls as against 23.85 for the preceding year. The number of deaths was 530. No cases of yellow fever originated on the Isthmus in 1909. One case of the plague developed on a ship at Balboa and was transferred to the quarantine station where death ensued.

PAN-AMERICAN CONFERENCE. See ARBITRATION, INTERNATIONAL.

PAPER. The agitation on the part of publishers against the paper manufacturers which was so conspicuous in 1908 continued in 1909, and the revision of the tariff in the first half of the year made it possible for the controversy to become very general and public. Inasmuch as the publishers were able to direct the force of their editorial and news columns against the paper men the controversy attracted considerable attention, both within and without the halls of Congress. For some time there had

been a demand for a lower duty and for an investigation of the industry by the government. In fact during the year 1908 the so-called Mann Committee of the House of Representatives had devoted itself assiduously to this subject, and in February, 1909, submitted a voluminous report on the paper and pulp industry. The recommendations of this committee directly affected the paper and pulp schedules of the new tariff then under consideration by the Ways and Means Committee, for they recommended the reduction of the duty on print paper from \$6 to \$2 a ton, the admission free of ground wood pulp, and 1/10 of a cent duty per pound on unbleached chemical wood pulp used in the manufacture of paper. After many hearings and rather acrimonious discussions the rates finally adopted in the bill as enacted into law were as follows: Print paper, \$3.75 per ton; mechanically ground wood pulp, 1/12 cent per pound; and unbleached chemically ground wood pulp, 1/4 cent per pound. There was, however, provision for an increased duty on paper and pulp where any country laid an export duty or otherwise restricted exportation into the United States, and for the announcement of such extra duties by a proclamation of the President.

In the controversy between the publishers and the paper manufacturers not only was the injustice of the former tariff alleged by the former, but the existence of various agreements or combinations acting in restraint of trade and maintaining prices at an undue and unnatural level. The removal of the duties on paper and pulp asked for by the publishers would not only remove this evil by bringing the foreign product into competition with the domestic but would also act for the conservation of the forests by drawing on other countries for pulp wood, which was the principal drain on American forest resources.

In December Herman Ridder, president of the American Newspaper Publishers Association, addressed the Attorney-General of the United States, calling attention to an organization of paper manufacturers alleged to be advisory paper makers as to the prices. The association then furnished the United States Attorney in New York specifications alleging restraint of trade in the paper industry which affected most seriously newspaper publishers. These changes were under consideration by the Federal authorities at the close of the year.

A termination of the struggle against the Manila Paper trust or "Parks Pool" was reached in April when the United States filed a bill in equity against the Manila and Fibre Association for violation of the anti-trust laws, asking that the association be dissolved and that punishment be inflicted on its members. The members of the association pleaded guilty and were fined \$2000 each with the exception of J. H. Parks, the prime mover in the association, who, after a number of months spent in Europe, returned also to plead guilty and was fined \$4000. The Federal authorities then devoted their attention to the "Parks" box-board pool (Box-Board Association), but no striking developments had been announced up to the close of the year.

The new tariff naturally brought up many interesting questions in the paper and pulp industry and there were rumors of a trade war with Canada, as the United States is the chief

customer of Canada's pulp and pulp wood. In Quebec Premier Gouin announced in June that the Province of Quebec would prohibit the export of pulp wood from Crown lands. In Newfoundland it was proposed to put an export duty on pulp exported to the United States, but this was reconsidered. An increase of duties on lithographic work led several German manufacturers to contemplate removal to the United States and one large concern manufacturing picture post-cards moved its plant from Leipzig to Brooklyn, N. Y.

Business conditions were not particularly good for the first half of the year on account of tariff agitation and other considerations, but during the summer and autumn there was a healthy increase in business. On the whole there was a distinct improvement over 1908, a year characterized by slack demand.

Furthermore, low water acted against active manufacturing and the year began with prospects of a paper famine, though the demand was not particularly active and the mills were able to supply their customers. Later in the year, and especially towards its end when business conditions were better, there was also a lack of power. In May there was a short-lived strike among the grinders in the pulp mill of the Crown-Columbia Pulp and Paper Co. at Oregon City, Oregon, but on the whole there were few labor difficulties in the United States during the year. The effects of the strike of Swedish sulphite mill workers, however, were felt, as the shipments to America were curtailed and prices increased, but following the resumption of work came a large increase of shipments.

The capital investment of the paper manufacturing industry according to Arthur C. Hastings, president of the American Paper and Pulp Association, amounted in 1909 to some \$300,000,000. The annual output was valued in that year at \$250,000,000 and represented over 4,500,000 tons of paper in different grades, produced by over 100,000 people directly employed in the business, there being in the United States about 600 paper and pulp mills engaged in the manufacture of all grades of paper. The output in 1909 was made up of many grades, but it was essentially composed as follows: Newspaper, 1,200,000 tons; book paper, 650,000 tons; writing paper, 200,000 tons; box-board, 1,000,000 tons, and the remainder made up of wrapping papers and tissue.

During the year a plant for the manufacture of paper pulp from cotton seed hulls and rice straw was installed at the Southern Fibre Company, in Virginia, to work a process which it was believed would be available for the manufacture of high grade paper, and would ultimately lead to the establishment of a paper finishing mill. With the increase in the prices of wood, paper containers were gaining a place of increased importance as substitutes for wooden boxes, so that not only were the manufacturers of container board very active, but even the wooden box makers in many instances began to add equipment for making paper board container boxes, which were finding wide vogue.

The United States government determined during the year to locate at the University of Wisconsin a new forestry and paper experiment station, which would be actively concerned with the study of the production of paper pulp. It was also proposed to maintain at Appleton,

Wis., a Government Wood Pulp Experiment Station where work could be carried on under manufacturing conditions. At the end of the year the plant had not been finally selected, but it was to be put in operation early in the year 1910.

An excellent and interesting monograph on *Suitable Paper for Permanent Records* was prepared during the year by F. P. Veitch, Chief of the Leather and Paper Laboratory of the Bureau of Chemistry, United States Department of Agriculture, and published by that department.

The Anglo-Newfoundland Development Co. worked energetically during the year with its large mills at Great Falls, erected within four or five years at an expense of over \$4,000,000, and various auxiliary enterprises. A large financial interest in this corporation is held by the Amalgamated Press, Ltd., of which Lord Northcliffe is the leading controller. The pulp produced from the Newfoundland spruce is of high quality and enough wood was cut in 1909 for the following year's run, amounting to 80,000 cords. The first paper was made at the mills early in December, and the actual manufacture of newspaper on a large scale was expected soon to begin.

Great Britain imported more paper in 1909 (January-November, 8,718,604 cwts.) than in 1908 (January-November, 8,659,519 cwts.). Foreign competition was proving distressing to British manufacturers, who were beginning to demand protection, as improved machinery and methods have failed to improve conditions. Thus reel paper from the United States in 1909 was valued at £115,824, as compared with £42,400 in the previous year. Moreover the British manufacturer was face to face, not only with foreign, but with colonial competition, especially from Canada and Newfoundland, where the large works of the Harmsworth Company were being erected for operation in 1910. Nevertheless exports showed an increase and for the 11 months, January to November, were valued at £2,318,452, as compared with £2,114,639 in 1908.

In Germany the paper industry was badly depressed during 1909 and many manufacturers experienced losses. This was particularly serious, as several years before electric and other improved machinery had been installed so that the factories were in excellent shape to handle a large volume of business when it was forthcoming, which was not the case in 1909.

Imports of paper and products into the United States increased from 3,000,000 dollars in 1899 to 12,000,000 dollars in 1909, while exports of paper and manufactures thereof increased from 5,500,000 dollars in 1899 to practically 8,000,000 in 1909. These figures are exclusive of books, maps, and engravings, the imports of which increased from 1,330,000 dollars in 1899 to nearly 6,000,000 in 1909, and the exports thereof, from 2,660,000 dollars in 1899 to 6,000,000 in 1909.

Germany is the chief source of imports of paper and paper goods, that country having supplied in the fiscal year 1909 over 7,000,000 dollars' worth out of a total importation of 12,000,000. From the United Kingdom the imports were valued at a little over 1,000,000 dollars; from France, less than a half million dollars, and from other Europe, about 2,000,000 dollars. Japan is credited with nearly 300,000

000 dollars' worth, though arrivals from that country form a diminishing proportion of the total imports of the United States. Lithographic labels and prints comprise nearly one-half of the total paper imports, having ranged from 4,000,000 to 5,000,000 dollars in the last 3 years; while printing paper, enumerated for the first time in the fiscal year 1909, showed for that period a total importation of 37,000,000 pounds, valued at nearly 1,000,000 dollars.

PAPUA, TERRITORY OF. A British possession, constituting a dependency of the Commonwealth of Australia. Prior to September 1, 1906, it was known as British New Guinea. The Territory includes the southeastern part of the island of New Guinea, together with the D'Entrecasteaux and Louisiade groups and all islands between 8° and 12° S. latitude and 141° and 155° E. longitude. The total area is about 90,000 square miles (upwards of 87,000 square miles on the island of New Guinea), and the population about 500,000 (711 Europeans in 1907). The natives have been hostile and often given to cannibalism, but in certain large areas they have assumed peaceful habits. Thousands of them are receiving instruction from the four missionary bodies established in the Territory. Considerable progress has been made in agriculture, some 300,000 acres having been leased. The principal products are coconuts, rubber, sisal hemp and coffee; and there are also under cultivation cotton, cacao, vanilla, tapioca, tea, cinnamon, and tobacco. The forests contain much valuable timber, and the coconut and sago palm are abundant. Some gold is mined and near Port Moresby (the capital) promising copper deposits are being worked. The gold output in 1907 was valued at £39,710; in 1908, £52,837. Trade is chiefly with Queensland and New South Wales. The leading imports are food-stuffs, tissues, hardware, and tobacco; exports, trepang, copra, gold, pearl shell, pearls, sandal-wood, rubber, and coffee. Imports and exports in 1907 were valued at £87,776 and £63,756 respectively; in 1908, £94,061 and £80,616 respectively. Local revenue, derived mainly from customs, amounted to £21,813 in 1907 and £26,019 in 1908; in addition a regular subsidy of £20,000 is received annually from the Commonwealth. In those years the expenditure was £45,335 and £48,525. For account of explorations carried on during the year, see **EXPLORATIONS**.

PAPYRUS, DISCOVERIES OF. See **ARCHÆOLOGY** and **PHILOLOGY**.

PARA COTA. The bark of an undetermined South American tree, probably a species of *Cryptocarya*. The bark has a spicy odor and an aromatic and pungent taste. Its active principle is called paracotoin ($C_{12}H_{16}O_4$), a pale yellow crystalline body; neutral in reaction, tasteless and odorless, and sparingly soluble in water. Para cota is used as an appetizer and in diarrheal diseases.

PARAGUAY. An interior South American Republic lying between Bolivia, Brazil, and Argentina. The capital is Asunción.

AREA, POPULATION, ETC. The estimated area is 97,722 square miles. The actual extent of Paraguayan territory, however, cannot be determined until the settlement of the boundary dispute with Bolivia. The estimated population is 636,000, mostly a mixture of Spanish, Guaraní Indian and negro origin. The Indian

inhabitants number about 50,000. The larger towns, with estimated population, are: Asunción, 60,259; Villa Rica, 25,000; Concepción, 15,000; Carapegua, 13,000; Paraguari, 10,000; Villa del Pilar, 10,000.

Primary instruction is free and compulsory. The public and primary schools are stated to number about 400, with 850 teachers and 40,000 pupils. There are five national colleges, corresponding to American high schools, a normal school, an agricultural school, and the University of Asunción, with departments of law, social sciences, medicine, and pharmacy. The matriculants of the University number about 200. The state religion is Roman Catholicism, but religious toleration prevails.

PRODUCTION AND COMMERCE. The greater part of the soil has been alienated by the government to capitalists, syndicates, and foreign bondholders, and is mostly uncultivated. Of the crops, yerba maté, tobacco, and oranges are commercially the most important. The annual production of yerba maté is estimated at 17,000,000 pounds and of tobacco at 6,000,000 pounds. About one-half of the maté and tobacco are consumed in the country. Other products of importance are cotton, corn, alfalfa, beans, manioc, and various fruits. The livestock industry shows continued development; the following figures, which are probably too small, are given: Cattle, 2,800,000; horses, 187,000; sheep, 214,000; goats, 24,000; mules and asses, 8000. The leading forest products are quebracho logs and extract.

Imports and exports have been valued as follows in pesos (the peso is equivalent to the Argentine peso, worth 96.5 cents):

	1906	1907	1908
Imports.....	6,627,194	8,077,414	3,929,724
Exports.....	2,695,139	4,156,409	3,731,745

The leading imports in 1908 were: Food-stuffs, 981,919 pesos; textiles, 727,471; hardware, 319,947; beverages, 253,274. The most important exports are live-stock products, tobacco, yerba maté, oranges (and petit grain), quebracho wood and extract, and cotton. Of the imports, in 1908, Germany supplied a value of 989,047 pesos; Great Britain, 868,257; Argentina, 763,660; France, 355,558; Italy, 323,578; Spain, 256,189; the United States, 214,467. Of the exports Argentina received a value of 1,830,365 pesos; Germany, 812,186; Uruguay, 529,204; Belgium, 146,013. Exports to the United States amounted to only 1231 pesos.

COMMUNICATIONS. The only railway in operation extends from Asunción to Parapó, 155 miles. An extension from Parapó to Encarnación, 70 miles distant on the Paraná River, was under construction in 1908. Across the river from Parapó is the Argentine town of Posadas, to which a line is being extended. Upon the completion of both lines, ferry service will be established and the time between Asunción and Buenos Ayres reduced to 48 hours. It is expected that the Paraguayan line will be finished in 1912. There is steamer connection between the Paraguayan ports and Montevideo. There are about 2000 miles of telegraph line, which connects with the Argentine system.

FINANCE. For 1907, the internal revenue is reported at 274,939 pesos (gold), and the customs receipts, 1,927,469; total, 2,202,409;

for 1908, internal revenue, 288,390, and customs receipts, 1,471,844; total, 1,760,234. The expenditure for 1907 is stated at 2,189,965 pesos (gold). The gold peso coincides in value with the Argentine peso, 96.5 cents. The average value of the fluctuating paper peso is about 10 cents. The external debt consists of the British debt, which stood at £831,850 on December 31, 1908; the Argentine debt, 12,435,590 pesos (gold) in 1904; the Brazilian debt, 9,876,500 pesos (gold) in 1904. The internal debt in 1906 amounted to 35,000,000 pesos of notes in circulation. From this sum should be deducted the invested capital of the Agricultural Bank, 14,531,238 pesos (paper) and redemptions, 7,374,378 pesos (paper), the balance being 13,094,384 pesos (paper). In addition there is a debt of 4,700,000 pesos (paper) incurred during the revolutionary movement of 1908.

ARMY. There is a permanent army nominally of about 100 officers and 2500 men formed into 4 battalions of infantry, 6 squadrons of cavalry, 5 batteries of field artillery, 2 machine gun sections, and 1 battalion of coast artillery. The organization is on German lines and while every citizen between the ages of 20 and 35 is liable for service there is but a small annual contingent of recruits.

GOVERNMENT. The executive authority is vested in a president, who is elected indirectly for a term of four years and is assisted by a cabinet of five members. The legislative power devolves upon a congress of two houses, the Senate and the chamber of Deputies, members of each being chosen by popular vote. General Benigno Ferreira, who was elected for the term ending in 1910, was superseded in 1908 by the Vice-President, Emiliano González Navero, who was chief executive in 1909.

PARDOW, WILLIAM O'BRIEN. An American Jesuit priest, died January 23, 1909. He was born in New York City in 1847. He graduated at the College of St. Xavier in 1864, and completed his course of training as a Jesuit at Woodstock College and the University of Laval, in France. In 1891 he was president of St. Francis Xavier; in 1893, provincial superior of New York and Maryland; in 1901-3, curate of the Church of St. Ignatius; 1903-6, lecturer at the Jesuit Institution, and, from 1906 to his death, curate of the Church of Gesu in Philadelphia. Father Pardow was regarded by many as the foremost Catholic preacher in the United States. He was among the most liberal of the Catholic clergy in his theological views and was also a scholar of wide attainments. He was identified with the Modernist movement in the Church. The Society of Daughters of the Faith chose him as their spiritual adviser.

PARLOA, MARIA. An American author and domestic economist, died August 21, 1909. She was born in Massachusetts in 1843. She lectured extensively on cookery and other subjects and contributed to magazines on food preparation and household management. She was the author of *First Principles of Household Management and Cookery*, *Kitchen Companion*, *Young Housekeeper*, *New Cook Book and Marketing Guide*, and *Home Economics*.

PARTY DESIGNATIONS. See ELECTORAL REFORM.

PATENTS. See UNITED STATES, paragraph *Patents*.

PATRIOTIC SOCIETIES. A number of organizations which have as their object the preservation of the records of important historical events and especially of the wars in which the United States has participated; the encouragement of love of country, the saving and restoration of historical sites and objects, the celebration of anniversaries and historic events and the fostering of fraternal feeling and intercourse among the veterans, with their membership and chief officer in 1909, are the following: Society of the Cincinnati, founded in 1783, 842; President-General, Hon. Winslow Warren; Sons of the Revolution, founded in 1875, 7560; General-President, John Leo Carroll; Sons of the American Revolution, organized in 1889, 12,000; President-General, Morris B. Beardsley; Grand Army of the Republic, organized in 1866, 220,600; Commander-in-Chief, Samuel R. Van Sant; Military Order of the Loyal Legion, instituted in 1885, 8902; Commander-in-Chief, Major-General Grenville M. Dodge; Sons of Veterans, founded in 1879, about 50,000; Commander-in-Chief, George W. Pollitt; Union Veteran Legion, organized in 1884, 20,000; National Commander, Thomas J. Shannon; General Society of Mayflower Descendants, founded in 1894; Governor-General, Samuel B. Capen; Military Order of Foreign Wars, instituted in 1894; Commander-General, Alexander S. Webb; Society of Colonial Wars, founded in 1892; Governor-General, Arthur J. C. Sowdon; Order of Founders and Patriots of America, founded in 1896; Governor-General, Col. Rollin Simmons Woodruff; Huguenot Society of America, organized in 1883; President, Col. William Jay.

The most important patriotic societies maintained by women and their membership are the following: Women's Relief Corps, auxiliary of the Grand Army of the Republic, 161,646. National President, Mrs. Jennie Berry; Colonial Dames of America, founded in 1890, President, Mrs. William Ruffin Cox; Daughters of the American Revolution, founded in 1890, 60,250. President-General, Mrs. Matthew T. Scott; Daughters of the Revolution, organized in 1891, President-General, Mrs. Frank E. Fitz; Dames of the Revolution, organized in 1896, President Mrs. Montgomery Schuyler.

The army corps of the Union and Confederate armies that participated in the Civil War have also distinct organizations, and there are several patriotic societies of Spanish War veterans and of descendants of the War of 1812.

The Grand Army of the Republic held its national encampment in 1909 at Minneapolis, and the following officers were chosen: Commander-in-Chief, Samuel R. Van Sant, of Minnesota; Senior Vice-Commander, William M. Bostaph, of Utah; Junior Vice-Commander, A. B. Beers, of Connecticut. The loss by death for the year beginning January 1, 1909, was reported at 10,124, leaving the total strength of the Grand Army of the Republic at that date 220,600.

The twenty-eighth encampment of the Sons of Veterans was held at Washington, D. C., on August 23-26, 1909, and the twenty-ninth annual encampment will be held at Atlantic City, N. J., in September, 1910.

Many of the patriotic societies participated in the Hudson-Fulton celebration (q. v.) and to their efforts no little of its success was

due. The Daughters of the American Revolution placed a memorial to mark the first line of defense at Washington Heights, New York City. This line was defended by the American army in 1776. The Order of the Founders and Patriots of America placed a tablet on the Custom House during the progress of the celebration to mark the site of Fort Amsterdam, erected in 1626, and its successor, Fort George, demolished in 1790. The Society of Colonial Wars placed a tablet at 48 Wall street to mark the position of the bastion of the wall, which between 1663 and 1699 extended from the East River along the line of present Wall street and thence westerly to the Hudson River. The Daughters of the Revolution participated in the unveiling of a statue of General Anthony Wayne at Newburg on September 29. The Daughters of the American Revolution erected a fountain commemorative of the Hudson-Fulton celebration at Hudson, N. Y., on October 7.

PATTERSON, RAYMOND ALBERT. An American journalist, died November 13, 1909. He was born in Chicago in 1856 and graduated from Yale College in 1878, being a classmate of President Taft. He engaged in newspaper work for the Chicago *Tribune* soon after leaving college, and became Washington correspondent for that paper in 1894. He continued in this position until the time of his death. Mr. Patterson was one of the best known and influential newspaper writers in the country.

PAVEMENTS AND ROADS. There was little change in either city paving or country and town road construction in 1909. The search for a durable and dustless road surfacing material that will stand the wear and tear of the automobile has continued, and has resulted in a material extension of the use of various types of bituminous macadam. Abroad tar is used chiefly as a bituminous binder of broken stone road surfaces. In America there are also used heavy asphaltic oils and to a relatively slight extent asphalt itself. A British Royal Conference was held in London in May, 1909, which resembled, on a small scale, the International Road Congress held in Paris in 1907. A road congress was also held in connection with the Alaska-Yukon-Pacific Exposition, at Seattle, in 1909. The usual Good Roads Congress was held at Topeka, Kan., later in the year.

PAYNE, SERENO ELISHA. An American Congressman, Chairman of the Ways and Means Committee of the House of Representatives, born at Hamilton, N. Y., in 1843. He graduated from the University of Rochester in 1864 and in 1866 was admitted to the practice of law. From 1868 to 1871 he was city clerk at Auburn, N. Y., and in 1871 supervisor. He was district attorney of Cayuga county from 1873 to 1879. He was elected member of Congress from the Twenty-sixth New York District in 1883, serving until 1885, and from 1885 to 1887, and from 1889 to 1909 represented the Thirty-first New York District. He was active in framing the McKinley and Dingley tariff laws, and took the chief part in preparing the measure introduced into the House of Representatives in a special session in 1909. (See **TARIFF and UNITED STATES**, section *Tariff*.) In

1898 he was a member of the Joint High Commission to negotiate the treaty with Canada.

PEABODY MUSEUM OF HARVARD UNIVERSITY. An institution for anthropological and archaeological research founded in 1866 by George Peabody, who gave \$150,000 for that purpose and for a professorship in Harvard University, which has become the anthropological section of the university museum. The South American Expedition, which returned in August, 1909, after three years spent in the field, is the most extensive expedition undertaken by the museum. Another important enterprise of the museum was the starting of another Central American expedition, with Dr. A. M. Tozzer as field director, and Mr. R. E. Merwin as second officer. This party has a special permit from the government of Guatemala to carry on archaeological research in that country. Its headquarters will be in Belize, British Honduras. The most important event in the history of the museum during the year was the resignation of Professor F. W. Putnam from the office of Peabody professor of American Archaeology and Ethnology in Harvard University, and of his curatorship of the museum. On the acceptance of his resignation the corporation, on request of the museum faculty, appointed him honorary curator in charge of the museum. This office he accepted and will remain in charge as formerly, but his services will be gratuitous. He receives a salary from the Carnegie Foundation for the Advancement of Teaching. The officers of the museum in 1909 were Abbott Lawrence Lowell, President; Frederic W. Putnam, Honorary Curator; Roland B. Dixon, Ph.D., Secretary and Librarian, and Frances H. Mead, Secretary.

PEARY, ROBERT EDWIN. An American Arctic explorer and civil engineer in the United States navy, who on April 6, 1909, was the first to reach the North Pole. He was born at Cresson, Pa., in 1856 and graduated from Bowdoin College in 1877. In 1881 he became a civil engineer in the navy, and was assistant engineer on the route for the proposed Nicaragua Ship Canal in 1884-5. In 1887-8 he was Engineering Chief of the Nicaragua Canal Survey. His interest in Arctic exploration had been awakened even before this time, and in 1886 he had made a reconnaissance of the Greenland inland ice cap east of Disco Bay, in latitude 70° N. Following this he began preparations for his first expedition to Northwest Greenland, and he sailed on this expedition in 1891. He was in the Arctic regions at this time from June, 1891, to September, 1892, and the result was a brilliant record of achievements, not the least of which was the fruit of his studies and minute experimentation in the field covering every phase of equipment for Arctic work. He made a journey over the inland ice from 5000 to 8000 feet above the sea from McCormick Bay to the northeastern angle of Greenland, a round trip of 1300 miles, including land travel on the northeast coast. This was considered to be one of the most brilliant feats of polar sledge work ever accomplished. On this trip he proved that the northern extension of the great interior ice cap ends below latitude 82° N. He also established the insularity of Greenland and ascertained the existence of detached

ice-free land masses north of the mainland, and the fact that the east and west coasts rapidly converge north of the seventy-eighth parallel. His ethnological work among the Eskimos, known as the Arctic Highlanders (from Cape York to Smith Sound), was the most thorough and noteworthy that had hitherto been done in that region. Well known men of science participated in auxiliary expeditions which resulted in the securing of important data as to glacial and other Arctic phenomena. In 1893-95 Peary made another journey to the same region, completing his study of the Arctic Highlanders and making another journey across the ice cap of Independence Bay. At this time he discovered the famous meteorites of the Eskimos near the coast of Melville Bay. These meteorites became in 1909 the property of the American Museum of Natural History (q. v.). In 1896-7 summer voyages were made to the Melville Bay region, and in 1898 Peary again started north for the purpose of outlining the northern extension of land masses above Greenland and of reaching the North Pole if possible. This expedition covered four years, during which resurveys of a considerable extent of coast land in the neighborhood of Smith Sound were made, and new coast lines were surveyed on the west side of Grinnell Land and north of the Greenland mainland. Peary also made at this time a number of notable and very difficult sledge journeys along the northern channels leading to Lincoln Sea. He passed the farthest north made up to that time, by Lockwood, and traced the northern limit of the land masses north of Greenland to its highest point, 83° 39' N., and then followed the southerly trend of the coast for many miles toward Independence Bay on the east coast. In the spring of 1902 he made an attempt to reach the North Pole from Cape Hecla, on the north coast of Grant Land. At latitude 84° 17' the polar pack became impracticable and further efforts to advance were given up. In the summer of 1905 he commanded another expedition in the ship *Roosevelt*, and in the summer of 1906 reached 87° 6', the nearest approach to the pole up to that date. In 1907 he made preparations for another expedition to reach the pole, but on account of the failure of the builders to complete repairs to the vessel in time he was obliged to postpone the expedition until 1908. On the final and successful attempt to reach the pole he sailed on July 6, 1908, on the steamer *Roosevelt* for the Arctic Ocean by way of Smith Sound Channels, West Greenland. For an account of the successful culmination of his plans and the circumstances connected with the discovery of the pole, see the article POLAR EXPLORATION. During his Arctic explorations Peary retained his position as a naval officer and attained the rank of a civil engineer with the title of commander. The success of his expedition was due in large measure to the support of the Peary Arctic Club, an organization formed for the purpose of rendering him such assistance. The total expense involved in the various expeditions is estimated at \$500,000. Peary is a member of many learned societies and is the recipient of gold medals from the Philadelphia Geographical Society, the American Geographical Society, and the National Geographic Society. The medal

presented by the last-named society was in recognition of his discovery of the pole. He has contributed much to geographical journals and popular magazines and is the author of *Northward Over the Great Ice* (1898) and *Nearest the Pole* (1907).

PEAT. See FERTILIZERS.

PECKHAM, RUFUS WHEELER. An American jurist, Associate Justice of the Supreme Court of the United States, died October 24, 1909. He was born at Albany in 1838, the son of Rufus William Peckham, an eminent jurist. He was educated at the Albany Academy and at a school in Philadelphia, after which he studied law in his father's office. At the age of 21 years he was admitted to the bar, and soon thereafter became a member of the firm of Peckham and Tremain. This connection lasted until 1878, when Mr. Tremain died, and the firm became Peckham and Rosendale. In 1869 he was elected district attorney of Albany county, N. Y., and he was engaged while in this office in many important trials. He was an ardent and aggressive Democrat, and was at one time president of the Albany Democratic County Committee and presiding officer of several of the conventions of the party. He took an active part in the National Conventions of 1876 and 1880. In 1883 he was elected Justice of the Supreme Court of New York, and while holding that office in 1886 was elected Associate Judge of the Court of Appeals. While serving on this bench he was appointed by President Cleveland in 1895 Associate Justice of the Supreme Court of the United States. In 1907 Justice Peckham was offered the nomination for Governor of New York State by David B. Hill, but this offer he declined. Justice Peckham was one of the most able jurists that ever occupied the American bench.

PELLAGRA. (It. *pelle*, skin, and *agra*, rough.) This disease, although of recent recognition in the United States, has already been reported from seventeen States, and assumed the proportions of a national public health problem during 1909. Sporadic cases of the disease had been reported as early as 1863, and King, of Washington, suggests that the great mortality in the Andersonville and Libby Prisons might have been due in part to this disease, since the sanitary conditions (and the fact that corn was the chief article of diet) were those under which the disease would most likely be developed. It was not until 1907, however, that any number of cases were recognized in the United States, but in 1908-9 reports indicated it to be of alarming frequency in the Carolinas, Georgia and Alabama. The *Public Health Reports*, vol. xxiv., No. 25, contains a table showing about 1000 known cases of pellagra in thirteen States, most of them in asylums or similar institutions. A conference to consider the problem was held at Columbia, S. C., during 1909, which nearly 600 physicians attended.

The disease in Europe dates back to 1680. In the period of 1680 to 1700 corn was introduced into Spain, and authentic accounts of the disease begin to appear from that time on. The disease spread from Ovideo, still the principal focus of the disease, to Lower Aragon, Saragossa, Navarre and other provinces, and was variously known as *mal de la rosc*.



Photograph by McCluer Studio, New York

COMMANDER ROBERT E. PEARY, U. S. N.
DISCOVERER OF THE NORTH POLE

lepra scorbutica, mal del sole, and mal de la misera. In Italy the disease was first reported fifteen years after it was noticed in Spain. It broke out simultaneously in the districts of Milan, Brescia, Bergamo and Lodi, and rapidly spread through the whole of Lombardy, and finally, beginning with the year 1800, spread southward as far as Tuscany. Here, too, spoiled maize was believed to be the cause of the disease. Immense numbers of the population were attacked, so that at various times 31.70, 30.52 and 23.66 per thousand of the population were affected. In 1878 it was stated that 20 per cent. of the conscripts in Lombardy were unfit for military duty by reason of pellagra. The Italians called it *il delirio della miseria*. In 1884 it was estimated that there were 10,000 pellagrins in Italian hospitals and insane asylums, and in 1903 it was stated that there were 60,000 cases of pellagra in Italy. In France the disease was somewhat less prevalent, but cases and epidemics have been reported since 1818, when it was known by the name of *maladie de la Teste*, from the fact of its being first noted in the vicinity of Teste. In Rumania the first recorded case was in 1810. Between 1833 and 1846 it was very prevalent and was known by the name of "Buba Tranjilar." Its cause was attributed to the importation of damaged corn from Italy. In 1907 there were estimated to be 40,000 pellagrins in Rumania. The disease may be said to be endemic between 42 and 46 degrees north latitude, 11 degrees west and 26 degrees east longitude of Paris. Pellagra has been endemic in Corfu, in the Austrian Tyrol, in Egypt, in Algeria, Tunis, Bulgaria and Serbia, and several other countries in the south of Europe.

The exact etiological factor in the production of pellagra is not definitely known. A connection between the eating of damaged corn and the disease has been recognized from the earliest times, but later investigations point to some other cause. Predisposition is believed to be an important factor, lowered physical resistance, worry, insufficient food, bad housing and alcoholism are supposed to make the individual more susceptible. Neusser believes that corn contains a non-toxic glucoside produced by the *bacillus maidis*, that in the intestine this body is decomposed, producing a toxic substance, but that this occurs only when the bowel is already in a diseased condition. Sambon sums up the situation by saying that while the association of pellagra with the eating of maize is too universal to be ignored, there is good ground for the belief that pellagra is a protozoan disease allied with trypanosomiasis and syphilis. Wood has isolated a bacillus from the blood of a pellagrin, which he believes is the same organism that Peltauf and Heider, Zuboni, Majocchi and Tizzoni have found. The organism is a strepto-bacillus.

The disease appears in two forms. The chronic form is characterized by symmetrical erythema, appearing usually in the spring and associated with stomatitis, diarrhoea and gastric disturbances, followed by profound nervous and mental disturbances and cachexia. As summer advances the symptoms usually disappear, but recur with the following spring in a more pronounced and enduring form. The acute or fulminating variety of pellagra, called by Lombroso the typhoid form, runs a course of

three weeks to three months and invariably ends fatally. No satisfactory treatment has yet been found. Improvement in hygienic surroundings, liberal diet and baths and douches are valuable, together with tonics, such as arsenic. The transfusion of blood from recovered pellagrins into the sick has been reported as successful. See in *Public Health Reports*, June, 1909, an article on Pellagra by C. H. Lavinder.

PENANG. See STRAITS SETTLEMENTS.

PENFIELD, WILLIAM L. An American lawyer and public official, died May 9, 1909. He was born in Dover, Mich., in 1846 and graduated from the University of Michigan in 1870. From 1870 to 1872 he was an instructor in Adrian College, and in the latter year was admitted to the bar. He began to practice in Auburn, Ind., in 1873. He was chosen city attorney and became identified with local politics. From 1894 to 1897 he was judge of the Thirty-fifth Circuit of Indiana, and from 1897 to 1905 was solicitor to the United States Department of State. In the latter year he resigned and resumed the practice of law in Washington. Judge Penfield, as solicitor, was counsel for the government in many important cases, among them arbitrations between the United States and Santo Domingo, Peru, Haiti, Nicaragua, Guatemala, Salvador and Mexico; the Pius fund cases against Mexico, and in the arbitration between the United States and Venezuela before the Hague Tribunal.

PENNSYLVANIA. One of the Middle Atlantic Division of the United States. Its area is 45,126 square miles. The population in 1909, according to a Federal estimate made in that year, was 7,241,716.

MINERAL PRODUCTION. Pennsylvania far surpasses any other State in the value of its mineral products. It produces practically 50 per cent. of the coal mined in the United States. The total production of coal in 1908 was 200,448,281 short tons, having a spot value of \$276,995,152. This included 74,347,102 long tons of anthracite, with a spot value of \$158,178,849, and 117,179,527 short tons of bituminous coal, with a spot value of \$118,816,303. The production of both anthracite and bituminous coal in 1908 was less than in 1907, but owing to the fact that anthracite no longer enters to any great extent into manufacturing industries it was less seriously affected by the financial depression than bituminous coal. The aggregate production of both kinds in 1908 showed a decrease of 39,399,208 short tons, or 14.97 per cent. in quantity, and of \$42,242,930, or 15.24 per cent. in value, from that of 1907. Of the total decrease, 2,085,319 long tons and \$5,405,207 in value were in the production of anthracite. Notwithstanding the decrease the output of anthracite in 1908 was, with the exception of 1907, the largest ever obtained, and exceeded that of 1906 by 10,702,092 long tons in quantity and \$26,261,155 in value. The decrease in the production of bituminous coal in the State from 1907 to 1908 was 32,963,650 tons and \$36,847,723 in value. In spite of the decreased production the number of men employed in the coal mines of the State showed an increase of 9606 over 1907, the number reported in 1908 being 340,135. Of this number 171,174 were in the anthracite mines and 165,961 in the bituminous mines. From 1814,

when mining first began in the State, to the beginning of 1909 the total production of both anthracite and bituminous has amounted to about 4,000,000,000 short tons, the production of anthracite being slightly more than half. It is estimated that the amount of coal originally in the anthracite fields was 21,000,000,000 short tons, and in the bituminous fields 112,574,000,000 short tons. It is estimated that 2,014,779,075 short tons of anthracite have been mined and 1,963,248,780 tons of bituminous. During the year 1250 men were killed and 2189 injured in the coal mines of the State, as against 1514 killed and 2576 injured in 1907. Pennsylvania alone produces more coal than any other single foreign country except Great Britain. In the manufacture of coke Pennsylvania also stands first among the States. The quantity produced in 1908 was 15,511,634 short tons, which was considerably more than half the total production of the country. This, however, was a decided falling off from the production of 1907, which was 26,513,214 short tons. This production is the smallest since 1904, and was caused almost entirely by the financial depression throughout the country. The total value of the coke produced in Pennsylvania in 1908 was \$32,569,621, as against \$67,638,024 in 1907. The number of coke-making establishments in 1908 was 252, one less than in 1907, though the total number of ovens increased in the State from 51,364 to 52,606. Of these establishments 44 were idle during the year. The production of petroleum has steadily declined since 1896. There were produced in 1908 9,424,325 barrels, as compared with 9,999,306 barrels in 1907. While Pennsylvania stands seventh in the quantity of petroleum produced, in the value of the product it stands fifth, being surpassed only by California, Illinois, Oklahoma and West Virginia. Pennsylvania stands first in the production of natural gas, and it is first among the States in the cement industry. In 1908 there were produced 18,254,806 barrels, valued at \$13,899,807, as compared with 20,393,965 barrels in 1907, valued at \$19,698,806. Other important mineral products are slate, stone, coal products, sand and gravel, iron ores, lime, clay, natural cement, quartz, salt and talc. The value of the mineral products of the State in 1908 was \$473,083,212, as compared with \$657,783,345, the value of the product in 1907.

During the latter part of 1909 the coal mining operations, particularly in the anthracite region of the State, were seriously hampered by a scarcity of water, which affected also to some extent the bituminous regions, where a large quantity of water is required in connection with the operation of coke ovens. The shipments of anthracite from the mines of the State during the eleven months ending November 30, 1909, amounted to 56,194,447 tons. The total production of anthracite during the year was approximately 79,700,000 short tons, while the bituminous production was between 360,000,000 and 370,000,000 short tons. The recovery of the iron trade in 1909 from the depression of 1908 caused a great increase in the production of coke in the Connellsville district, bringing it practically to equality with the production of 1907, or an increase of from 90 to 100 per cent. over the production of 1908.

The decline in the production of petroleum

in the State in 1909 amounted to about 3 per cent.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 48,800,000 bushels, valued at \$34,160,000 from 1,525,000 acres; winter wheat, 26,265,000 bushels, valued at \$28,629,000 from 1,545,000 acres; oats, 25,948,000 bushels, valued at \$12,974,000 from 998,000 acres; barley, 196,000 bushels, valued at \$131,000 from 9000 acres; rye, 5,508,000 bushels, valued at \$4,406,000 from 360,000 acres; buckwheat, 5,655,000 bushels, valued at \$3,845,000 from 290,000 acres; potatoes, 23,790,000 bushels, valued at \$15,464,000 from 305,000 acres; hay, 3,732,000 tons, valued at \$54,633,000 from 3,118,000 acres; tobacco, 30,732,000 pounds, valued at \$2,765,080 from 31,200 acres. Pennsylvania ranks second in the production of rye. The rye crop of 1909 was slightly smaller than in 1908, when it was 5,880,000 bushels. The acreage, however, increased in 1909 by about 20,000. The oat crop of 1909 was smaller than that of 1908 by about 2,000,000 bushels. The acreage increased by about 1000. The corn crop of 1909 showed a decrease from that of 1908 by nearly 10,000,000 bushels. The crop of the latter year was 57,275,000 bushels. The acreage, however, increased from 1,450,000 to 1,525,000 in 1909. The tobacco crop in 1909 was much smaller than that in 1908, when 39,008,000 pounds were produced. The acreage, however, increased from 29,440 to 31,200. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 619,000; mules, 43,000; dairy cows, 1,140,000; other cattle, 917,000; sheep, 1,112,000; swine, 931,000. The wool clipped in 1909 was estimated at 4,936,960 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$500,470. Of these products the chief in point of value was oysters, of which 129,400 bushels, valued at \$135,950, were taken for market purposes, and 147,500 bushels, valued at \$41,650, for seeding purposes. Next in point of value was the pike perch, of which 2,761,900 pounds, valued at \$90,540, were taken. Other fish in the order of the value of their production were sea bass, \$44,340; shad, \$38,350; and whitefish, \$36,290. Other fish taken in considerable quantities were alewives, German carp, sea bass and cod. There were engaged in the fisheries of the State 557 independent fishermen and 679 wage-earning fishermen were employed. The number of vessels engaged in the fishing industry was 66, valued at \$214,850.

EDUCATION. The school attendance of the State in 1909 was 1,263,034. There were 26,771 female teachers and 7935 male teachers. The average monthly salary of male teachers was \$62.23 and of female teachers \$47.07. The total expenditure for education was \$38,523,925. The legislature of 1909 passed a complete code for the public schools of Pennsylvania, but it was vetoed by the Governor by reason of changes and amendments which had been made to the code after it had left the hands of the educational commission. The issue of employment certificates to minors between the ages of 14 and 16 was placed in the hands of the school officials who are responsible for the education

of the children. This will enable those in charge of the enforcement of the compulsory attendance laws to secure the attendance of all the children who should be in school. The State Commissioner of Health at the end of the year was about to undertake the medical inspection of all pupils in rural schools at State expense.

FINANCE. The report of the State Treasurer for the fiscal year ending November 30, 1908, showed a balance in the general fund on December 1, 1907, of \$10,486,410. The receipts from all sources for the year ending November 30, 1908, were \$25,670,540, and the payments to the general fund for the same period were \$29,158,878, leaving a balance in the general fund on December 1, 1908, of \$6,998,073, which, with the balance in the sinking fund, made a total amount in the treasury at that date of \$9,540,604.

POLITICS AND GOVERNMENT. The legislature on January 29 re-elected Boies Penrose United States Senator for the third time. There was practically no opposition to Senator Penrose's election. The legislature on March 17 elected George T. Oliver of Pittsburgh United States Senator to fill the vacancy caused by the resignation of Philander Chase Knox, who entered the Cabinet of President Taft. Of the 202 Republican votes cast, Senator Oliver received 201. The legislature adjourned on April 15. The most important measures passed at this session will be found in the paragraph *Legislation* below. A school code was finally passed after it had received many amendments, but it was vetoed by Governor Edwin S. Stuart. An attempt to pass a local option measure was defeated on March 9, when the House voted against it by a vote of 137 to 66. Local option was the chief issue in the spring of 1908 when the legislators were nominated. The legislature appointed a commission to report upon a revision of the laws of the commonwealth relating to corporations and to revenue. It also authorized the Governor to appoint a commission to revise the election laws of the State. The legislature made appropriations to the aggregate of \$73,000,000. From this Governor Stuart cut about \$21,000,000, including his vetoes of the State highway bill, which he had always advocated, and the bill for the extension of the Capitol park. These cuts were made for the purpose of bringing the appropriations within the estimates of \$52,000,000 of revenue available in the next two years. Large sums were cut from the appropriations of the semi-State institutions. From the appropriation of \$650,000 for the University of Pennsylvania, recommended by the legislature, the Governor cut a sum reducing it to \$430,000. A pure food law, designed to take the place of the Tustin act, declared unconstitutional by the Superior Court in May, was signed by Governor Stuart on May 13. This bill prohibits the sale of adulterated or misbranded articles of foods and is generally modeled on the food law of the United States.

The Republican State Convention on June 16 nominated candidates for State offices. For Justice of the Supreme Court, Judge Robert Von Moschzisker of Philadelphia was nominated; for Auditor-General, Senator A. E. Sisson, and for State Treasurer, Jeremiah A. Stober. The chief feature of the platform adopted was the endorsement of the position

taken by Senator Aldrich and his supporters on the tariff schedule as opposed to the downward revisionists. The Democratic Convention for the nomination of State officers was held at Harrisburg on August 4. Colonel James M. Guffey, National Committeeman, was in absolute control of the convention. For Justice of the Supreme Court, C. LaRue Munson was nominated; for Auditor-General, J. Wood Clark, and for State Treasurer, George W. Kipp. All the nominations were made by acclamation. The platform took up the subject of capital and labor, and insisted on the enactment of laws by the legislature insuring the rights of speech, as well as the enforcement of the anti-trust laws. The Republican party was denounced for its extravagance and particularly for the establishment of new offices and for the increase of salaries of the State officials. The Prohibition State Convention was held on August 27 at Pittsburgh. For State Treasurer, Dr. Franklin Fish was nominated; for Auditor-General, Colonel C. W. R. Smith, and for Justice of the Supreme Court, Harold L. Robinson.

In the election of November 2 the Republicans elected all the State officers voted for by large majorities. The total vote cast for State Treasurer was 811,179, of which Stober, the Republican candidate, received 450,630, and Kipp, the Democratic candidate, 307,763. The Republican candidates for Auditor-General and Supreme Court Justices were elected also by large pluralities. The results in Philadelphia will be found in the paragraph below. Ten amendments to the State constitution and the schedule to make them effective were voted for at the election, and of these all but one received the necessary number of votes for their adoption. These amendments were chiefly in regard to the elections in the State.

On November 5 a decision of great importance was handed down by the Supreme Court of the State affecting the granting of licenses to corporations under the Brooks high license law. The decision was in the case of the Indiana Brewing Company of Indiana, Pennsylvania. The Quarter Sessions Court of Indiana county had refused the brewing concern a license, and the Superior Court affirmed the decision. In the opinion of the majority of the court, it was declared that the license was refused on the sole ground that the brewing concern was an unfit corporation. The opinion affirmed that the personal habits of the members of the corporation should not be taken into account, but that the corporate acts of the corporation must be examined to learn whether they have violated the laws of the State.

PHILADELPHIA. The primary elections held in Philadelphia on June 5 were particularly significant on account of the attitude of the public toward the conduct of the Rapid Transit Company, which operates the street railroads of the city. The candidates for the respective nominations for district attorney were Samuel P. Rotan, who had the support of the regular Republican organization, and D. C. Gibboney, who was nominated by the reform element, including the Democratic and William Penn parties. Mr. Gibboney made a remarkably strong fight for the nomination. It was alleged that in spite of an agreement made in 1907 between the city and the Rapid Transit Company the company had acted from time

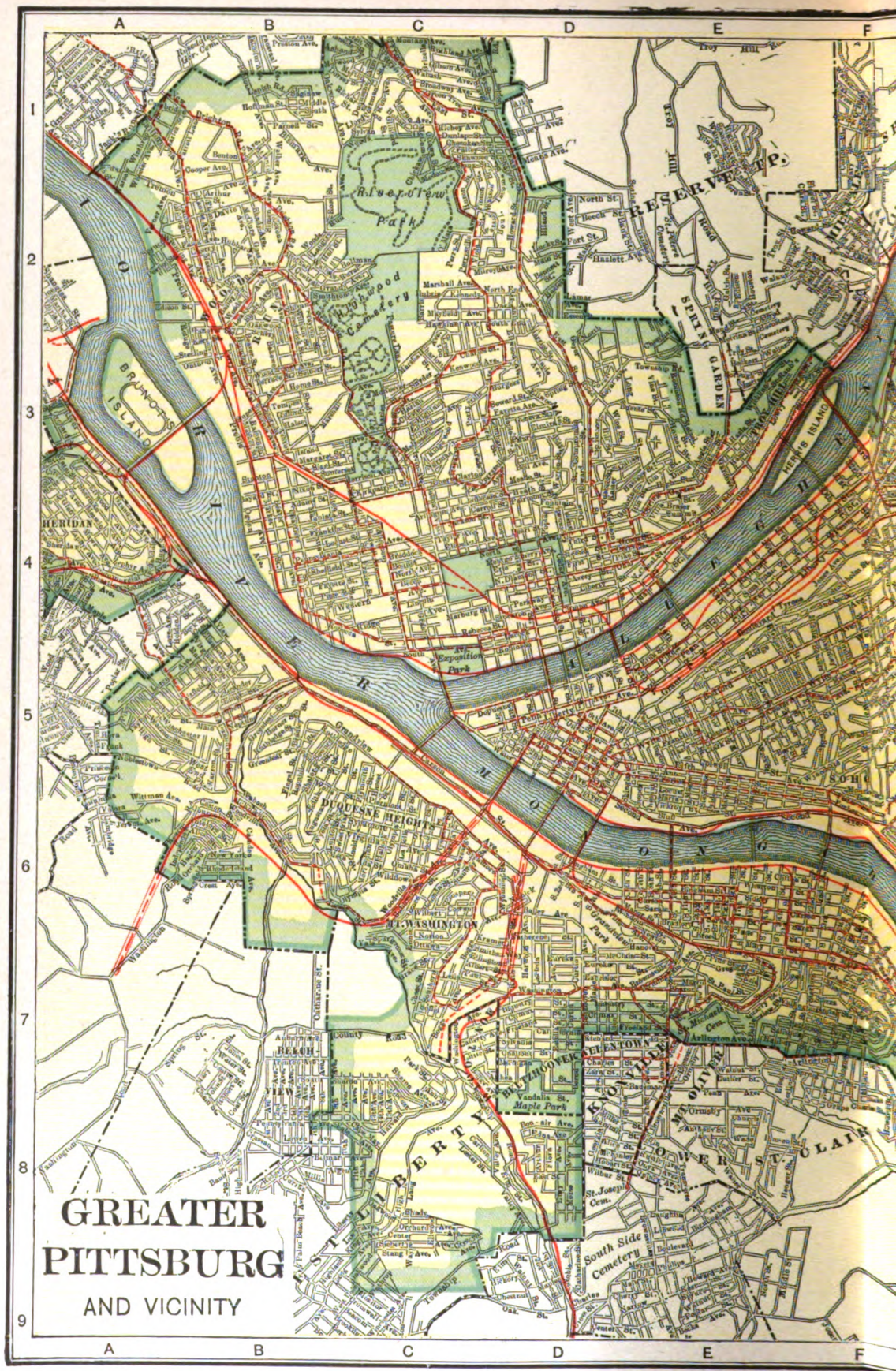
to time in an arbitrary fashion, and in particular its action in abolishing "strip tickets," six tickets for twenty-five cents, aroused a resentment which was manifested in a great mass meeting for the appointment of a Committee of Fifteen to enforce the public's side of the question. There was also considerable dissatisfaction over the attitude of Mayor Reburn, who minimized the public outburst, and against the continuance of State Senator Wolf as one of the city's representatives. Subsequently came the street car strike (see STRIKES) and the triumph of the strikers. Under the direct primary Mr. Gibboney was voted for as a candidate for renomination on three tickets, those of the Republican party, the Democratic party and the William Penn party. In the William Penn party he had no opposition and was unanimously nominated by over 20,000 votes. In the Democratic party he was also successful, receiving nearly 9000 votes. In the Republican party he received over 56,000 votes, but was defeated by about 5000 votes by Mr. Rotan. Senator Wolf resigned as the city's representative of the street car corporation, and the City Solicitor was asked to take steps to enforce the reinstatement of the "strip ticket." In the election on November 2 Mr. Gibboney ran on the Democratic and Independent tickets. He was defeated by Rotan by a plurality of more than 45,000. The vote was the largest in the city's history and the interest was intense.

On February 19 the new system of water-works for the city was put in operation, and filtered water from the mammoth filtration plant at Torresdale flowed through the city mains. The output of this plant is over 200,000,000 gallons a day. On May 28 the Councils passed the measure advocated by Mayor Reburn providing for a widened parkway for the city. This is the beginning of a scheme by which a great boulevard is to be constructed, extending from City Hall to the Green street centres, not only on the American seaboard, that the plan, when completed, will cost from \$22,000,000 to \$25,000,000. This final action by Councils marks the actual beginning of this public improvement. The War Department during the year approved the recommendation of the Board of Engineers providing for a 35-foot channel survey of the Delaware River. It was expected that this decision would meet with the approval of the Chief of Engineers of the army, and that the necessary bonds for the work will be issued in the near future. The survey is a necessary preliminary of the realization of the 35-foot channel, which would put Philadelphia on a par with great maritime centres, not only on the American seaboard, but of the world.

GRAFT PROSECUTIONS. The year was notable for the uncovering of a remarkable condition of corruption among members of the city government of Pittsburgh and the conviction of a number of city officials and others. Corrupt conditions had for many years been known to exist in Pittsburgh, but it was not until the election of Mayor George W. Guthrie in 1906 and the activities of the Voters' League that active steps were taken against suspected persons. Corrupt practices centred about the custom of naming certain banks in the State as depositories of State and city funds. This custom, begun many years ago, has resulted in

the wrecking of financial institutions, the suicide of many bank officials and the disgrace of others. The city of Pittsburgh had up to July, 1908, been paid 2 per cent. on its bank deposits and on daily balances, which were held in several banks. In these institutions the city treasurer carried about \$15,000,000. An ordinance was introduced in Councils providing that certain city depositories be designated by Councils for a term of four years, the city to receive only 2 per cent. on daily balances. Certain other reliable banks offered to pay 2½ per cent. Out of 77 votes cast at the balloting on this ordinance in Common Councils, 76 were in favor of it. The ordinance was vetoed by Mayor Guthrie and was repassed over his veto by a vote of 73 to 2 in Common Council, and 42 to 6 in Select Council. One of the banks which was to profit by this measure was the German National of Pittsburgh, and on December 7, 1908, a special national bank examiner, visiting this bank, came upon a suspicious entry in its books of a sum of \$17,500, which subsequently was found to have been paid to councilmen. This memorandum led to the exposure of the system of corruption. Aside from this accidental discovery on the part of the national bank examiner, secret investigations had been in progress by the Civic Voters' League in 1908. These investigations had not been completed at the time of the bank exposure, and the officials of the league attempted to prevent the disclosures until its evidence should be ready for use. The Comptroller of the Treasury was asked to keep the disclosure secret, but it was said that he referred the matter to President Roosevelt, who directed the examiner to do his duty and to make immediate exposures. Fearing the flight of the men against whom they had secured evidence in their secret activities, the members of the League on December 21, 1908, caused the arrest of seven councilmen. These were William Brand, president of the Common Council; John F. Klein, William H. Melaney, T. O. Atkinson of Select Council, Joseph C. Wasson, Jacob Soffel, Jr., and Hugh Ferguson. All except Atkinson were members of the Common Council. President Brand, Wasson and Klein were charged with conspiracy, bribery and solicitation of bribes, while the others were charged with the latter two offenses only. At the same time W. W. Ramsey, president and A. A. Vilsack, cashier of the German National Bank of Pittsburgh, were arrested on charges of bribery. These events were the result of investigations carried on by the Voters' League. Nearly a year previous William A. Martin, a common councilman, was convicted and sent to the penitentiary for having accepted a bribe to aid in procuring a franchise for the Tube City Railroad, connecting Pittsburgh with McKeesport. According to Martin's story, C. S. Cameron, president of the Tube City Railroad, offered him \$70,000 to put the franchise through councils. Martin was sentenced to three years in the Western Penitentiary. Cameron fled to Canada, but returning, stood trial and was convicted on Martin's evidence. He was, however, released on bail, pending an appeal of his case to the State Supreme Court. He was convicted on January 12, 1909.

On February 18, 1909, W. W. Ramsey, former president of the German National Bank





of Pittsburg, was convicted on a charge of bribing councilmen to have his bank named as one of the six city depositories. A. A. Vilsack, cashier of this bank, testified to the payment of the money to Councilman John F. Klein. On February 22, 1909, Vilsack pleaded no defense to the charge of bribery. Klein was found guilty on February 20, 1909. On March 1, 1909, Councilmen John F. Klein, Joseph C. Wasson and William Brand were found guilty of conspiracy. W. W. Ramsey was indicted with them, but was cleared under the court's instruction, it having been admitted in open court by District Attorney William A. Blakeley that he had no evidence against him.

On March 22, 1909, a grand jury handed down indictments against six more persons accused of having taken part in the grafting among the city councilmen. Those indicted were Dallas C. Byers, the head of A. M. Byers and Co., for conspiracy to bribe; Frank A. Griffin, vice-president and cashier of the Columbia National Bank of Pittsburg, for perjury; Dr. W. H. Weber, select councilman, for conspiracy to bribe; Charles Stewart, select councilman, for soliciting a bribe of \$2500 for the passage of the city depositories ordinance from A. A. Vilsack, cashier of the German National Bank of Pittsburg; Henry W. Bolger, saloon-keeper, for aiding and abetting a bribe in connection with the city depositories ordinance, and John F. Klein, common councilman, for conspiracy to bribe. Mr. Byers was accused of having secured the vacation of city streets for his firm by bribing councilmen, after withdrawing his offer to pay \$21,500 to the city for the street. Mr. Byers has since died. Mr. Griffin was accused of perjury while testifying before the grand jury concerning the allegation that he paid \$25,000 from the funds of the Columbia Bank to have the bank named as one of the city depositories.

On April 19, 1909, John and Charles Colbert, brothers, were found guilty of attempting to bribe the jury paneled for the trial of Klein, Wasson, Brand and Ramsey. They were on May 5, 1909, each sentenced to two years' imprisonment in the Western Penitentiary and to pay fines of \$500. On the same date John F. Klein was sentenced to three and one-half years and a fine of \$1500 for bribery and conspiracy; Joseph C. Wasson and William Brand were each sentenced to pay a fine of \$500 and serve eighteen months in the penitentiary; H. M. Bolger to two years' imprisonment and a fine of \$500; W. W. Ramsey, former president of the German National Bank, was sentenced on a charge of bribery to eighteen months' imprisonment and a fine of \$1000; A. A. Vilsack, cashier of the German National Bank, was not called for sentence, as he was to be used as a witness in other cases. At the close of the year the cases of Klein, Wasson, Brand, Ramsey and Bolger were pending in the Superior Court and the men were under bail. These convictions were obtained largely through the efforts of William A. Blakeley, the District Attorney of Allegheny county.

In addition to the revelations and convictions in Pittsburg, a grand jury in August and September carried on investigations into charges of graft and extravagance in the construction of a \$2,000,000 court house at Wilkes-Barre. In its report the jury charged county officials, contractors and others with malfeas-

ance in office, fraud, extravagance, ignorance and collusion. While this jury had not the power to prosecute, it recommended that the next grand jury find indictments against the men it had accused. The Superior Court, after hearing the appeal of the four principals found guilty of defrauding the State in connection with the furnishing of the State Capitol at Harrisburg from 1902 to 1907, decided that they had received fair and impartial trials and ordered that the surviving defendants serve their sentences in jail. The men convicted were John H. Sanderson, who had the contract for "trimmings" of the building, and who died in 1909; William H. Mathues, former State Treasurer, who is also dead; William P. Snyder, formerly Auditor-General, and J. M. Shumaker, who was Superintendent of Public Grounds and Buildings when the Capitol was being furnished. The decision as applying to Snyder and Shumaker, the only survivors, requires that they submit themselves for the two years' term of imprisonment imposed on all the defendants. These sentences were given on December 18, 1908, and their execution had been delayed, pending appeals.

GREATER PITTSBURG. In February, 1909, William A. Magee was elected mayor of Greater Pittsburg and took office in April. At the beginning of his administration the work of improving the greater city began. Greater Pittsburg has an area of 40.969 square miles. The old city of Pittsburg had an area of 28.369 square miles and was divided into 38 wards. Between 1905 and prior to the actual annexation of the City of Allegheny on December 5, 1907, the boroughs of Elliott, Esplen and Montooth and the township of Sterrett were added to Pittsburg. On December 21, 1907, Sheraden borough was admitted and on January 17, 1908, West Liberty borough was annexed. These boroughs and Allegheny added 12.6 square miles to the territory of the Greater City. It is now divided into 27 wards. With the exception of the northern boundary the city is surrounded by populous boroughs. In November, 1909, the people approved a bond issue of \$6,775,000. Of this sum \$3,000,000 is to be expended to give every part of the municipality the benefit of filtered water. Another \$1,500,000 is to be used in removing the heavy grades in the business section, for the widening of busy thoroughfares and the raising of streets in the flood district. The remainder of the issue is to be utilized for freeing the Allegheny river bridges, connecting the old city with the North Side; the purchasing of playgrounds; the popularizing of the parks; the erection of a tuberculosis hospital and the building of a rubbish disposal plant. The city is making substantial appropriations for public baths, a municipal lodging house and a tree commission.

OTHER STATE EVENTS. The year was notable for a number of serious strikes in Philadelphia, Pittsburg and other cities. These will be found discussed in the article on STRIKES. One of the most remarkable incidents of the year in the State, from the widespread interest which it caused, was the abduction in March of the young son of James P. Whitla of Sharon. The boy was taken from his home and was not returned until a ransom of \$10,000 was paid for his recovery. The abductors were

subsequently captured and were tried and convicted. On October 18 sentences ranging from six to eighteen months were imposed upon five members of the election board of Reilly township, who had pleaded guilty to a charge of making a false return of the votes cast at the June primary election. The judge of election in the Fifth Ward, Shenandoah, who pleaded guilty to a similar charge, was sentenced to three years' imprisonment and to pay a fine of \$500 and costs. Twelve men were killed in the Cambria Steel Company's coal mine, two miles from Johnstown, on October 31, as the result of what is supposed to have been a dynamite explosion.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: Measures were enacted creating a legislative reference bureau. Provision was made that opinions on religious matters should not affect the competency or credibility of witnesses. Laws were enacted providing for adult probation and the indeterminate sentence. It is provided that no money shall be paid out of the State treasury except under authority of an act, in which not only the purpose but the amount to be expended shall be specified. A number of acts were passed relating to public health and to the purity of foods and drinks. An excellent child labor law was enacted. See **CHILD LABOR**.

OFFICERS: Governor, E. S. Stuart; Lieutenant-Governor, R. S. Murphy; Secretary of the Commonwealth, Robert R. McAfee; Treasurer, J. O. Sheatz; Auditor-General, R. K. Young; Adjutant-General, Thos. J. Stewart; Attorney-General, M. Hampton Todd; Superintendent of Public Instruction, N. C. Schaeffer; Insurance Commissioner, David Martin; Commissioner of Public Lands, Nathaniel Ewing—all Republicans, except Schaeffer, Dem.

JUDICIARY. Supreme Court: Chief Justice, D. Newton Fell; Associate Justices, J. Hay Brown, William P. Potter, John Stewart, Robert Von Moschzisker, S. L. Mestrezat and John P. Elkin—all Republicans, except Mestrezat. Clerk, Eastern District, vacant; Clerk, Middle District, William Pearson; Clerk, Western District, George Pearson.

The legislature of 1909 was composed of 39 Republicans and 11 Democrats in the Senate, and 173 Republicans and 34 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article **UNITED STATES**.

PENNSYLVANIA, UNIVERSITY OF. An institution of higher learning in Philadelphia, Pa., founded in 1740. In October, 1909, the total registration was about 4800 in the six departments, College, Graduate School, School of Law, School of Medicine, School of Dentistry, and School of Veterinary Medicine. The officers of instruction for all departments numbered about 500. A feature of the University list is the large representation from foreign countries in all departments. Among the new buildings added during the year was an extension of the Veterinary School. There is also to be a new Graduate School building. The collections in the library number about 300,000 volumes and many independent pamphlets of historical and contemporary interest. Numerous additions are made at intervals to the fine archaeological exhibits in the University museum. The productive funds of the University

amount to about \$5,350,000 and the total income is about \$550,000. The president is Charles C. Harrison, LL. D.

PENOLOGY. The National Conference on Criminal Law and Criminology met at Chicago in June. The most important result of this conference was the founding of the American Institute of Criminal Law and Criminology, designed to further the scientific study of crime and to organize the practical movements for solving the problems revealed. Sectional committees were appointed for the investigation of the following topics: systems of recording data regarding criminals, as physical and moral status, heredity, environment, characteristics of habitual criminals; drugs and intoxicants and their relations to crime, both in use and in traffic; reform methods, as probation, parole, pardon, and indeterminate sentence, together with the best means of organizing and correlating boards supervising these devices in connection with the courts; methods and organization of the criminal courts, with reference to the possibilities of simplifying and unifying court procedure. Other committees were selected to develop plans with reference to the translation of European books and documents, the establishment of a journal and the compilation of statistics.

The most important legislative investigation of prison conditions during the year was undertaken by Texas. Continued agitation by the press and the demand of the people led the legislature to appoint a committee which began work in July. In November a preliminary report was sent in to the Governor. Further testimony will be taken in January, 1910, and a final report submitted. The Texas system of leasing convict labor to contractors grew out of a lack of funds for prison maintenance in the '70's, and was started by legislative order. The prisons have been a source of profit to the State; but the punishment dealt the convicts has been brutal, and there has been very little attention given to reforming the prisons. The system is conducted on a purely mercenary basis, both in the penitentiaries and in the convict camps, though the latter are more severely criticised. The preliminary report showed the majority of the committee apparently indifferent to the urgent necessity of concentrating the prisoners and as favorable to the retention of corporal punishment, though under more stringent regulation. A minority report favored the abolition of corporal punishment.

In Pennsylvania the prison commission on investigation found decided demoralization, especially in the smaller prisons. Both at Franklin and at Crawford there was found great lack of discipline and woeful inattention to sanitation. In the District of Columbia provision was made for the payment of fifty cents per day to the families of men under sentence. This plan was only carried through Congress by the tact and firmness of Judge Lacy. The plan also provides that as soon as the prisoner shows a disposition to work steadily he is released on parole. He is thereafter, until his sentence is entirely completed, required to pay into the hands of the police each Saturday a stipulated amount. This money is, of course, given to his family, but this device enables the police and parole officer more readily to ascertain what the paroled is doing.

Cornelius V. Collins, Superintendent of State

Prisons in New York, in his annual report laid great stress on the recent increase in the number of criminals in that State. He attributed this increase to alien immigration, and suggested that the national government assume the burden of caring for such prisoners, and that these be deported after serving sentence. Of the 4320 prisoners in the three prisons, on September 30, one-fourth were aliens; Italians comprised 43 per cent. of the alien prisoners. New York receives more than its due share of vicious, lawless immigrants. The Superintendent declared that modern prison methods do not fit them. He resorted to the exceedingly large proportion of the executions of the death sentence in New York State that have been of aliens. In connection with the new Great Meadow prison at Comstock, the young and promising first offenders will be taught agriculture in all its branches. This, with the schools for the illiterate and industrial training in shops will make the New York prison educational work superior to any other in this country, if not in the world.

The advance report of the department of prisons, New South Wales, written by the comptroller-general, Frederick W. Neitenstein, showed a reorganization based upon the most advanced theories. Mr. Neitenstein stated that New South Wales is the first country to adopt the indeterminate sentence plan for habitual criminals without maximum or minimum limitations; he believed this plan had been very successful. A majority of all prisoners, and 90 per cent. of the juveniles probationed, turned out favorably. The "Shaftsbury House," a half-way station to freedom, is part of the system, and there is an inebriate act in the code which allows the term of a drunkard to be prolonged beyond that named in the first sentence. There has been a progressive and very marked decrease in the proportion of prisoners to population, this proportion being less than two-fifths what it was not many years ago. Thirteen large prisons had been closed up to 1908 and several smaller ones, many of the officers being dispensed with. Moreover, fifty-nine per cent. of the prisoners were from outside the commonwealth. The report showed that the prisons are splendidly equipped and managed. See JUVENILE COURTS.

PENSIONS. See UNITED STATES, section *Pensions*.

PEROGEN (OXYGEN BATH SALTS). Pero-gen bath is a preparation consisting of sodium perborate and a catalyzer which, when mixed with water, are capable of yielding 10 per cent. of oxygen. The catalyzing substance is a light, odorless powder, the exact composition of which is not divulged. It has no medicinal action, but the oxygen bath obtained by the use of perogen is said to have marked soothing, soporific effects, and to reduce blood pressure and the pulse rate to a much greater extent than the ordinary bath. For this reason it is useful in cardiac diseases characterized by high vascular tension, neurosis, insomnia, chronic nephritis, and skin diseases. See OXONE.

PERSIA. An Asiatic monarchy lying between the Caspian Sea and the Gulf of Oman. The capital is Teheran.

AREA. POPULATION, ETC. The latest and most trustworthy estimates place the area at 628,000 square miles, of which vast regions are desert;

the population at about nine and a half millions (including 1200 Europeans). The nomads are chiefly Arabs, Kurds, Turks, and Leks, to the number of about two millions. There are about eight million Mohammedans of the Sh'ah sect and 800,000 of the Sunni sect; 45,000 Armenians; 35,000 Jews; 25,000 Nestorians; and 9000 Parsis (Guebres). Teheran has about 280,000 inhabitants; Tabriz, 200,000; Isphahan, 80,000; Meshed and Kerman, 60,000 each; Barfurush and Shiraz, 50,000 each.

For the bulk of the people the acquiring of sufficient ability to read the Koran is considered adequate education. Instruction in religion, Persian and Arabic literature, science, etc., is imparted in a number of Persian colleges, while European institutions are maintained by private subscription.

PRODUCTION. The chief products are cereals, cotton, gums (especially tragacanth), dried fruits, silk, tobacco, and opium. Sheep and goats are numerous, and the wool produced is of excellent quality. The minerals (little exploited) are iron, coal, copper, lead, sulphur, antimony, nickel, cobalt, manganese, gypsum, borax, and salt. Turquoises are mined near Nishapur. Oil fields in the south have been successfully worked by an English company since 1902. Woolen carpets and rugs, shawls, silks, and cotton fabrics are almost the only manufactures.

COMMERCE. Trade conditions were greatly disturbed owing to the unsettled state of the country attendant upon the revolution of 1908-9. The trade of Tabriz, the centre of disorder, was at a standstill for many months. The latest available official figures are for the fiscal year ending March 20, 1908, which give imports and exports at 408,434,263 and 317,080,682 krans (1 kran was equal, July 1, 1908, to 7.2 cents) respectively, against 431,039,773 and 353,376,841 krans for the previous year, a decline of 58,902,000 krans in the total trade. The principal articles of trade in 1907-8, with the value in krans, are given as follows:

Imports	Krans
Cottons	148,672,000
Sugar	38,620,000
Tea	27,692,000
Cotton yarn	10,242,000
Gold and silver bars	9,938,000
Gold and silver coined	9,052,000
Woolens	9,230,000
Petroleum	6,018,000
Flour	5,948,000
Indigo and cochineal	3,852,000
Haberdashery	3,459,000
Exports	Krans
Fruits	46,332,000
Raw cotton	45,088,000
Rugs and carpets	29,284,000
Fish	24,588,000
Silk in cocoons	24,547,000
Rice	24,000,000
Opium	16,920,000
Gold and silver coined	15,106,000
Wool	12,078,000
Skins	10,814,000
Gums	9,628,000

Russia contributed imports valued at 191,171,879 krans, and received exports to the value of 202,661,562 krans; British Empire, 169,065,352 and 36,578,438; Turkey, 11,863,914 and 39,234,800; France, 9,965,970 and 10,915,917.

COMMUNICATIONS. A (Belgian) railway about six miles long runs south from Teheran. Several good wagon roads have been made and

others are in process of construction. Traveling is mostly by caravan, and transport by pack animals. There are 6312 miles of telegraph lines, with 10,754 miles of wires and 131 stations. There are 144 post-offices. The shipping of the Persian Gulf is principally British. Tonnage entered at Bushire, Lingah, Bender Abbas, and Muhamrah (1907-8) was 1,098,506 (897,159 British); at Caspian ports, 555,192, all Russian.

FINANCE. The monetary unit is the kran, whose value fluctuates with the value of silver. It was worth 7.2 cents July 1, 1908; July 1, 1909, 7 cents. No official statistics are published for the revenue and expenditure. The revenue, derived mainly from land tax, Crown lands, customs, and lease of monopolies, was estimated (1907-8) at 80,000,000 krans. The expenditure for the foreign office is about 2,600,000 krans annually; no data exist for other expenditures. The foreign debt is 32,500,000 roubles (\$16,737,500) borrowed in 1900 and 1902 from the Russian Banque d'Escompte for 75 years. It is guaranteed by the Russian government, and secured on the customs.

The (English) Imperial Bank of Persia issues notes. There are, besides, one Russian and two native banks, and a concession for a German bank was granted in 1907. A national bank is projected.

NAVY. The navy consists of eight small vessels, the largest of 600 tons, all employed in the customs service, none of which can be regarded as effective in war.

ARMY. The most important element in the Persian army is the Cossack brigade, trained and commanded in the higher ranks by Russian officers. It consists of 4 regiments of calvary, each of 2 squadrons of 170 men, aggregating 1350 men, a battalion of infantry consisting of 4 companies each of 100 men, 2 horse batteries of 4 6-horsed guns and 80 men, 6 ammunition wagons and a brigade band of 59. Arms and equipment are in large part obsolete, but in 1908 and 1909 new machine guns and field guns were being added. In 1909 eight 7.5 centimetre automatic-recoil field guns from Schneider-Creusot were added. Service in the brigade is by voluntary enlistment. There is also an irregular cavalry of about 20,000 mounted tribesmen under their tribal chiefs, whose inadequate arms and equipment were being improved. In addition there is an irregular infantry in which service is for life unless exemption or substitution is secured, usually by bribery. The irregular infantry is grouped in 69 battalions of 4 companies each 40 to 100 strong, and among these troops and civil population there were estimated to be some 300,000 muskets of various patterns, in addition to 10,000 or 15,000 muzzle loaders owned by the government and some 10,000 Lebel repeating rifles which had not been issued to the troops. Of semi-regular artillery there were 15 commands each consisting of 4 to 6 guns and a nominal personnel of 250 men. The guns are quite obsolete and not of the slightest use against Europeans. In 1909 of 32 Creusot field guns supplied in the previous year 16 were mounted and 8 given to the Cossack brigade. They were not considered good according to modern artillery standards.

GOVERNMENT. The reigning Shah is Ahmed Mirza, son of Mohammed Ali, the abdicated Shah. He was born January 20, 1898, succeeded his father upon the latter's abdica-

tion July 16, 1909, and was enthroned July 20. The Regent is Azad-ul-Mulk, chief of the Kazar tribe. The heir-presumptive is Mohammed Hassan Mirza. In June, 1909, under British and Russian coercion, Mohammed Ali restored the constitution and signed a new electoral law, by which law the elections subsequent to his abdication were conducted. The new National Council (Mejliss) consists of 120 deputies. Each constituency elects three times the number of persons entitled to represent it in the Mejliss, and these appoint the deputies.

HISTORY

THE NATIONALIST REVOLT. In spite of the triumph of reaction in 1908, the Nationalists kept up their opposition. A rising of the people of Ispahan occurred on January 1, and they were supported by the powerful tribe of Bakhtiari. Some fighting occurred and the Governor sought the protection of the British Consul. The chief of the Bakhtiari took possession of the city on January 5. The invaders soon constructed defenses and controlled the country for some forty miles around. Meanwhile the Nationalists held out at Tabriz, where Satar Khan repulsed three Royalist attacks in January. The Shah's forces could make little headway against the Nationalists at either Ispahan or Tabriz. Trouble occurred in Resht on February 8, when a mob attacked the troops, killed the Governor and set the government offices on fire. An insurgent government was set up and declared in favor of Nationalist principles. Fighting at Tabriz occurred at intervals during the spring. The Royalists effected a blockade at the end of February, and although the Nationalists succeeded in making sorties and in repulsing Royalist attacks, they were not in sufficient force to follow up their success. The situation soon became serious, since if the Revolutionists continued to hold the city, starvation would result, and if they surrendered a massacre was almost certain. On April 21, the Shah, at the instance of the Russian and British Ministers, granted a six days' armistice. The Europeans had feared that unless a famine were averted, an attack might be made on the consulate. Before the armistice went into effect, a sortie of the Nationalists occurred, in the course of which an American missionary named Baskerville was killed. Early in the summer it was evident that the Shah was unable to cope with the Nationalist opposition and he began to show signs of meeting the wishes of the constitutional party.

THE SHAH AND THE CONSTITUTION. When Shah Mohammed Ali succeeded in 1907, after his father, Muzaffir Ed-din, had granted a constitution, little was known of him except as governor of Azerbaijan, in which capacity he had shown hostility to reforms and in general a reactionary tendency. From the first it was clear that he was not in sympathy with the new ideas. Although he had sworn fidelity to the constitution in February, 1907, he promulgated another constitution in October and in December, 1907, he began his attacks on the Parliament. After the attempt on his life by a bomb-thrower in February, 1908, he was more than ever pronounced in his hostility toward the constitutional party and finally brought about the *coup d'état* of 1908, in the course of which the buildings of the Mejliss (Parliament)



MOHAMMED ALI
The deposed Shah of Persia



AHMED MIRZA
The Boy Shah of Persia
Photographs by courtesy of the "Review of Reviews,"
PERSIA



SIPAH DAR KHAN
Persian Nationalist Leader and Minister of War

were bombarded and the Deputies scattered. The Nationalist movement, however, was by no means put down and continued to make progress during the early months of 1909. As indicated in the preceding paragraph, the centre of the revolutionary fighting was Tabriz. Isfahan was also in the hands of the Nationalists and later Shiraz went over to their side. Before the end of January, the northern provinces were largely Nationalist and the constitution was supported by the people of the entire coast, reaching from Astara to Asterabad on the Caspian. Order was nowhere effectively established except in the region occupied by the constitutionalists. The only force that the Shah could depend on were the Russian Cossacks in his service. This resort to foreign mercenaries taken in connection with the constant fear of Russian intervention added greatly to his unpopularity. Finally the Russian government dismissed these troops and their commander, General Liakoff, from the Russian service as a proof of non-interference.

As in the closing months of 1908, there were conflicting reports as to the Shah's intention of restoring the constitution. His policy seemed to be wavering and at one time it was reported that he would restore the constitution, and at another it was denied. In February, however, it was said that he was in desperate straits for money and his troops would soon desert unless their arrears were paid. To forestall the placing of a foreign loan, the Nationalist leaders sent a circular to all the legations saying that they would not recognize any loans accorded to the Shah. It had been reported earlier in the year that the Shah intended to reestablish constitutional government and had appointed a Liberal as Minister of Foreign Affairs. Later it was said that he would introduce reforms and grant a limited measure of constitutionalism as soon as order was restored. But finally he found it necessary to make further concessions. On May 5 he signed a rescript declaring that a reorganization of the administration by constitutional means was necessary and appointing July 19 as the date for the election of a representative assembly. In two proclamations he announced that the constitution would again go into force and that political amnesty was granted. Thirty members of the constitutional party were added to the Cabinet in order to frame the new electoral law.

These concessions, however, were not sufficient for the Nationalists, who from past experience were very distrustful of the Shah's promises and who found matter of complaint in the Shah's appointments, and in the conduct of the Russian troops at Tabriz, and insisted on a number of radical changes. In June the draft of the new electoral law was finished and submitted to the provinces. The Mejliss was to consist of 120 members. Each town and province constituency was to elect three times the number of its representatives and from these intermediate bodies of electors the members of the Mejliss were to be chosen. Meanwhile, in spite of the Shah's constitutional policy, the Nationalists were preparing to march on the capital. Two columns, consisting chiefly of the Bakhtiariis, were converging on Teheran, one from the north, comprising the Nationalists from Tabriz and Kazvin together with some revolutionists from the Caucasus, and the other from the

south, from the region adjacent to the capital. The representatives of the British and Russian legations met the advancing Bakhtiariis on July 4. The latter made the following demands: The new Cabinet must be chosen by the Anjumans and the provincial governors must be approved by them; the Russian troops must leave the country and the Shah's irregulars be disarmed; the Ministry of War must control all the Persian forces. The Shah would not grant all these demands and the advance continued. The Cossacks prepared to oppose the invaders and a serious battle was apparently imminent; but the defenders were not numerous enough to guard all the approaches into the city and on the night of July 13 a large body of the Nationalists and Bakhtiariis entered the capital without opposition and occupied the Mejliss and all the northern part of the city. It was not known why they were permitted to make this unobstructed entry and in some quarters it was suspected that treachery among the Shah's forces accounted for it, but the people were enthusiastic supporters of the Nationalists and this fact in connection with the small number of the Shah's guard may be a sufficient explanation. Some fighting occurred on Tuesday and Wednesday, but it was of slight importance. After two days had passed in negotiations, the Shah took refuge at the Russian legation.

Terms of peace were arranged between the Nationalist force and the Cossacks, who were thenceforth to be under the Ministry of War. The Nationalists immediately constituted the National Assembly, which deposed the Shah, unanimously chose as his successor his favorite son, Ahmed Mirza, a child of eleven years of age, and appointed as regent a man of known liberal sympathies and popular with the Nationalists, namely Azad-ul-Mulk. The young Shah was proclaimed on July 17, and on the following day formally acknowledged by the members of the National Council. It was arranged that the ex-Shah should receive a pension, which was finally fixed at 100,000 toman, for his life and that he should not remain on Persian soil. He left the Russian legation on September 9 on his way to Europe. On August 4, General Liakoff returned to Russia. On the approach of the crisis Russian troops from the Caucasus had been dispatched to Kazvin to await the turn of events and to march on Teheran if war broke out between the Nationalists and the Shah's forces. As it turned out, their interference was not necessary and it was announced that they would soon return to Russia.

UNDER THE NEW GOVERNMENT. The general condition of the country continued to be greatly disturbed. Raids of tribesmen were reported in the Tabriz region in August and in some of the Armenian villages of the Karu Daghs. In parts of the country a condition of anarchy prevailed and in October disturbances were reported at Yezd and Zimjan. No definite details could be secured in regard to these reported disturbances. Early in November news came that Ardebil had been captured by a body of tribesmen, who cooperated with a force of reactionaries under Rahim-Khan, who was said to be the champion of the ex-Shah, and a force was dispatched from the capital and from Tabriz which together amounted to about four thousand men. The Russians had reinforced the

consular guard there, which was to defend the town until the government forces arrived. The tribesmen and Rahim-Khan left the city after negotiations. On their way to Ardebil the government troops encountered a force of anti-constitutionalists and after eleven hours of fighting defeated them and took four hundred prisoners. From the dispatches in regard to these events, it was impossible to determine to what extent these risings were due to a desire to restore the Shah or to a mere lust for plunder. The Russians subsequently withdrew their force from Ardebil. The elections for the new Mejliss took place in October. The Mejliss was opened on November 15 under Shah Ahmed and in the speech from the throne administrative reforms were promised. The speech declared that the presence of the foreign troops was the only menacing feature in Persia, and that it was hoped that they soon would be removed. On December 7 the Mejliss voted unanimously for the government's plan of borrowing money abroad and employing Europeans as advisers in the reorganization of the finance department; and application was subsequently made to the British and Russian legations for a loan of £500,000. An attack having been made on the Russian Consul-General at Bushire, near Shiraz, the government in November expressed its regret to the Russian representatives and announced that troops would be sent there to maintain order. There were reports later of disturbances at Shiraz.

For an account of the earthquakes occurring in 1909, see EARTHQUAKES.

PERU. A republic on the Pacific Coast of South America, between Ecuador and Chile. The capital is Lima.

AREA AND POPULATION. Neither Peru's territorial extent nor its number of inhabitants is definitely known. The area has been stated at about 440,000 square miles, though some estimates place it at nearly 700,000 square miles. There are several unsettled boundary disputes. Population estimates vary from less than 3,000,000 to more than 4,600,000. Probably more than half of the inhabitants are Indians, many of them uncivilized, and a large part of the remainder mestizos. The population of the larger cities in 1908 is given as follows: Lima, 140,884 (including 5522 Chinese and Japanese); Arequipa, 35,000 to 40,000; Callao, 31,000; Ayacucho, 14,346; Cuzco, 10,000 to 15,000; Iquitos (district), 12,000; Cerro de Pasco, 10,000; Huaura, 7646; Huacho, 6283. Immigration, which is small (although recently there has been a noticeable increase in the number of Japanese immigrants), is encouraged by the government. A decree of May 14, 1909, prohibits the immigration of Chinese having less than 5000 soles in cash.

Primary instruction is free and nominally compulsory. The President's message, July 28, 1909, stated that in the preceding year the primary schools numbered 2339, with 3105 teachers and 162,298 pupils. Normal schools and, in the departmental capitals, high schools, are maintained by the government. Institutions for higher, technical, and professional education are established at Lima, Cuzco, Arequipa, and Trujillo. The budget estimate for public instruction in 1908 was 842,440 soles. In Lima and some of the other principal towns there are private schools under the direction of European teachers. The state religion is Roman

Catholicism, and the public exercise of other religious forms is unlawful.

MINING. The exploitation of minerals occupies first place among Peru's sources of wealth. Mineral production in 1907 was valued at 34,990,570 soles, against 26,105,740 soles in 1906. In 1907 the copper output was valued at 17,092,750 soles; silver, 12,299,510; crude petroleum, 2,504,400; coal, 1,060,000; gold, 932,290; lead, 346,690. Other mineral deposits include nickel, zinc, mercury, iron, bismuth, salt, borates, sulphur, cobalt, borax, and antimony. At the head of the mineral-producing sections is the Department of Junin, embracing the celebrated Cerro de Pasco district; its output of silver in 1907 amounted to 108,026 kilos; copper, 17,151 tons; lead, 4970 tons, and coal, 169,368 tons. Recent developments in copper-mining have been particularly numerous and important, although in 1908 mining operations suffered temporarily from the fall in the price of copper and silver. Valuable coal measures, which hitherto have been practically useless on account of the lack of transportation facilities, are now being developed by a London syndicate; a railway is being constructed from Chimbote to the coal fields, which it was expected in 1909 would be reached early in the following year upon the completion of 81 miles of the line. At the beginning of 1908 there were in operation 177 mining camps, with 16,936 employees. Peruvian mines are exploited and managed very largely by Americans. Metallurgical plants in operation are reported to the number of 89, of which 19 are for amalgamation, 32 for lixiviation, 23 smelters, and 12 combination. There are also two petroleum refineries and one for sulphur.

AGRICULTURE. The leading crops are sugar, cotton, coffee, and rice. Cacao cultivation is extending. Other products are tobacco, wine, wheat, corn, olives, rubber, ramie, and corn. The leading products in 1907 are reported as follows: Sugar, 141,193 tons, valued at 11,247,230 soles; rubber, 9,545,820 soles; cotton, 14,484 tons, 5,844,410 soles; wool, 4203 tons, 4,566,690 soles; coffee, 1108 tons, 421,060 soles. The annual rice production is about 30,000 tons. Peruvian rubber is gathered in the eastern forest regions and shipped from Iquitos down the Amazon. The rearing of wool-bearing animals—sheep, alpacas, and llamas—is of increasing importance, and the introduction of Patagonian sheep for cross-breeding is one of the recent developments of the industry. **IRRIGATION.**

MANUFACTURES. Manufacturing industries except in the treatment of mining products, has not yet attained importance. Native industries include hat-plaiting and the weaving of coarse woolen blankets. There are five cotton factories and five woolen factories, consuming annually about 3000 tons and 600 tons of raw material, respectively. For the manufacture of coca 24 small factories are in operation, with an aggregate product in 1907 of 5914 kilos, valued at 666,300 soles. On a small scale there are also manufactures of beer, cigars, clothing, matches, candles, olive oil, soap, cotton-seed cake, saddlery, and furniture.

COMMERCE. Imports and exports have been valued as follows, in soles:

	1906	1907	1908
Imports.....	49,990,460	55,147,870	52,886,600
Exports.....	57,885,670	57,477,320	53,780,000

Detailed statistics of the articles of trade are not available later than 1906. For that year the values of the leading imports are reported as follows: Minerals and metals (exclusive of coal), 10,391,690 soles; cotton goods, 6,060,060; wheat, 2,605,170; coal, 2,323,310; woolen goods, 2,320,770; timber, etc., 2,210,610; machinery, 2,088,510. The leading exports in 1906 were valued: Sugar, 14,151,460 soles; minerals and metals, 11,880,880; gums, resins, etc., 10,378,720; wool, 5,197,510; cotton, 4,708,250; guano, 3,616,520. For 1907 imports from and exports to the countries commercially most important are stated as follows, in soles:

Countries	Imports	Exports
Great Britain.....	16,341,290	24,339,130
United States.....	11,646,670	13,671,060
Germany.....	3,984,330	3,669,570
Australia.....	3,184,620	.....
France.....	2,919,580	4,627,770
Belgium.....	2,599,100	2,685,710
Chile.....	2,471,240	5,731,930
Italy.....	1,816,210	50,940

COMMUNICATIONS. In 1908 the length of railways open to traffic was 1471 miles, of which 844 miles were operated by the Peruvian Corporation. The Central Railway extends from Callas to Oroya (140 miles), with a branch from Oroya to Cerro de Pasco (68 miles), and another to Huancaayo. The Southern Railway runs from the port of Mollendo to Puno, on Lake Titicaca (324 miles), connecting there with a line of steamers running to Guaqui, Bolivia; from Juliaca, near the lake, a branch extends to Sicuani (125 miles), and thence to Cuzco an extension was completed in September, 1908. Other railways in operation comprise spurs running from minor ports up the various river valleys; in 1909 a line from the port of Ilo to Moquegua was completed. In 1909 several railways were under construction, including a line from Huancaayo to Ayacucho (part of the Pan-American Railway), from Chimbote (through the coal region) to Recuay, from Lima to Huacho, from Tumbes to Puerto Pizarro, and from Yonan to Chilete. A railway is projected from Cerro de Pasco to Ucayli, and another from the Pacific port of Paita to Marañon, in the Amazon basin. Post-offices in 1909 numbered 613, and telegraph offices, 178, with 5986 miles of line. Excellent steamship service is maintained at the Peruvian ports, chief of which is Callao.

FINANCE. Gold is the standard of value. Ten soles comprise one libra, which is equivalent to the pound sterling, or \$4.8665. Revenue and expenditure have been as follows, in soles, for fiscal years ended May 31:

	1906	1907	1908
Revenue.....	25,277,660	28,792,660	29,974,330
Expenditure..	21,782,520	21,070,410	30,430,320

The sources of revenue in the fiscal year 1908 were: Customs, 13,623,920 soles; taxes, 9,480,200; salt monopoly, 1,450,000; posts and telegraphs, 1,015,000; various, 4,405,210. In the same year expenditures were: War and marine, 5,041,690 soles; interior, 4,312,350; justice and instruction, 4,286,220; finance and commerce, 4,229,380; fomento, 3,049,777; Congress, 1,016,110; foreign affairs, 481,530; extraordinary,

8,013,270. The estimated expenditure for the fiscal year 1909 was 30,011,930 soles. For the following year the estimated revenue and expenditure were 30,759,860 soles and 31,999,910 soles respectively. Of the estimated receipts for 1910 the following were the principal items: Customs, 14,421,500 soles; taxes, 8,192,360; spirituous liquors, 3,800,000; tobacco, 2,000,000; salt monopoly, 1,800,000.

In January, 1890, Peru was released from its foreign debt, in consideration of extensive concessions (including the state railways, and certain rights over guano deposits, the Cerro de Pasco mines, and vast tracts of lands), to the bondholders, who constitute the Peruvian Corporation. The terms of the contract were not satisfactorily carried out by either the government or the Corporation, and on April 2, 1907, an agreement was reached annulling, in part, the contract of 1890, and providing for the payment by the government to the Corporation of 800,000 soles annually, in monthly installments, for 30 years, beginning in July, 1907. The Corporation lease, originally 66 years, was extended by 17 years. In 1906 a German loan of 6,000,000 soles, guaranteed by the salt tax, was contracted for the purchase of armaments. In the spring of 1909 a loan of 4,000,000 was contracted, guaranteed by the internal-revenue tax on alcoholic liquors, the proceeds in the main to be applied to existing debts. The internal liabilities consist of a debt amounting to 26,606,450 soles, at one per cent., and a non-interest-bearing debt of 4,713,550 soles.

ARMY. Every citizen of Peru is liable for military service by the law of December 10, 1898, from his 19th to 50th year. From 19 to 23, service is with the regular army or on the supernumerary, from 24 to 30 in the first reserve, and from 31 to 35 in the second reserve, and those from 36 to 50 in the National Guard. The regular army, which is the active army in time of peace, has an effective strength of 4000 men. There are six battalions, of four companies each, of infantry, six squadrons of cavalry, each of two half squadrons, a regiment of artillery divided into two 4-gun mountain batteries, a section of two 4-gun field batteries, a section of foot artillery for coast defense, and a company of engineers. A reorganization was in progress in 1909. In addition to the regular army it was estimated that a force of 80,000 could be mobilized, but the majority would be deficient in military training.

GOVERNMENT. The executive authority is vested in a president, who is elected by popular vote for a term of four years, and is assisted by a cabinet of six members. The legislative power devolves upon a congress of two houses, the Senate (51 members, elected for six years) and the House of Representatives (116 members, elected for six years). The President in 1909 was Augusto B. Leguia, who was installed September 24, 1908.

HISTORY. An attempt was made by the revolutionary partisans of Pierola to get possession of the government, and at the end of May they seized President Leguia, but he remained in their hands only an hour. Loyal government forces attacked the revolutionists, secured the person of the President, took some prisoners and scattered the rest. Order was soon restored. The Argentine government rendered its award in the boundary dispute between Bolivia and Peru in July. The dispute concerned the

stretch of territory between longitude 62 and 78 degrees West, and latitude one degree North and 12 degrees South. For the possession of parts of this region there had been repeated contests between the South American States for many years, which resulted in numerous treaties and redefinitions of boundary lines. Bolivia, as Peru's ally in the war with Chile, had lost her part of the territory, which deprived her of her coast line and made her an inland country. Bolivia also lost in turn by the treaty of 1903 with Brazil, giving up her claim to the greater part of the Acre territory. In 1902 a general arbitration treaty was agreed upon between Bolivia, Peru and Argentina for the settlement of all boundary disputes, and in the same year Peru and Bolivia agreed to refer their boundary dispute to the Argentine President. President Alcora's decision, rendered in July, was largely in Peru's favor, granting her the best part of the territory, including rich rubber forests. Riots followed the announcement of the decision in the Bolivian capital, and feeling ran very high against the Argentine and Peruvian representatives. The Bolivian government refused to abide by the decision, alleging that the territory in dispute had not been inspected, and that the judgment was based on spurious documents. The situation was growing more and more strained, but the Bolivian government finally announced that it would accept the decision, rendered an apology to Argentina for the riots, and declared that it would enter into direct negotiation with Peru over any matters of dispute that remained. A protocol between Bolivia and Peru was signed in September. See ARBITRATION, INTERNATIONAL, and EXPLORATION.

PETROLEUM. During 1908 a study was made by the National Conservation Commission of the stock of petroleum in the known fields of the United States, and from this estimated total supply, the probable duration of the oil fields was calculated from the present increasing rate of production. From this investigation it was shown that in each nine years as much petroleum was produced as in all the preceding years. The enormous production of 1907-8 was at a still greater rate than that required to keep up this ratio of increase, although the product of production since 1900 is almost equal to all the preceding product since the beginning of the industry. In all nearly two billion barrels have been produced in 49 years, worth \$1,750,000,000. The total production in 1908 was 179,572,479 barrels with a value of \$129,706,258, as compared with a production of 166,095,335 barrels with a value of \$120,106,740 in 1907. The average price per barrel in 1908 was \$.722, as compared with \$.723 in 1907. The rank of the oil-producing States as regards quantity produced remained in 1908 practically the same as in 1907. While this was true, the rate of increase in California was so much greater than in the ranking State, Oklahoma, that California came within 1,000,000 barrels of first place, and the increased rate of production continued in 1909. California's product in 1908 exceeded the product of Oklahoma in 1907. In percentage of increase, however, Illinois exceeded either of the other great producers. For the production of the various States, including those mentioned, see paragraphs on *Mineral Production* under these States.

The consumption of fuel oil by railroads in 1908 continued in about the same proportion as

in 1907, with the addition of the Chicago, Rock Island and Pacific Railroad operating in Kansas and Oklahoma. The consumption of fuel oil by all railroads in the country in 1908 aggregated 16,889,070 barrels, as compared with 18,855,691 barrels in 1907. In the production by fields in 1908, the Mid-Continent field led, with 48,323,810 barrels; the California field was second, with 44,854,737 barrels. The total number of wells completed in all the fields in 1908 was 16,909, of which 13,210 were oil wells, 485 were gas wells, and 3214 were dry wells.

According to reports of the United States Geological Survey, a remarkable rate of increase in the production of petroleum which extended over 1907 and 1908 was checked in 1909. The total production in the United States in the latter year is estimated between 173,000,000 and 178,000,000 barrels, as against 179,572,479 barrels in 1908. The decrease was less than had been expected in view of the great accumulation of stocks during the preceding year. This accumulation occurred entirely in the States east of the Rocky Mountains that have no trade connection with California. This State, therefore, showed a great gain in which nearly all the pools participated. As a result of this, California now stands first in oil production, producing fully 10,000,000 barrels more than Oklahoma, which ranked second, and in 1908 ranked first. Developments begun in 1908 continued with increasing rapidity in 1909, many sections producing wells of large capacity (see CALIFORNIA). In Oklahoma the strenuous efforts of the Producers' Association to suspend drilling operations were successful to the point of reducing production, and even stocks. Transportation facilities improved throughout the year. Kansas continued to decline in the production of both petroleum and natural gas.

PRODUCTION OF CRUDE PETROLEUM IN THE UNITED STATES

(In Barrels of 42 Gal.)

(Engineering and Mining Journal.)

Field	1908	1909
California	45,000,000	58,250,300
Colorado	411,836	*500,000
Gulf, Texas	11,206,464	9,593,000
Louisiana	6,835,130	3,192,000
Illinois	38,844,899	29,500,000
Lima, Indiana	7,287,000	6,192,000
Ohio .....	.....	.....
Mid-continental†	50,741,678	46,826,196
Kentucky-Tennessee	1,250,000	*1,250,000
Appalachian‡	24,240,000	25,394,200
Wyoming	*13,000	*15,000
Others	*3,000	*5,000
Total	184,711,413	180,717,696

* Estimated.

† Kansas and Oklahoma.

‡ Pennsylvania, New York, West Virginia and eastern Ohio.

The figures for the production of 1909 given by the *Engineering and Mining Journal* are a trifle larger than the product estimated by the United States Geological Survey. According to the former authority, the production in 1909 was 180,717,696 barrels, a decrease of about 2 per cent. over the production of 1908. The oil fields of Texas and Louisiana showed a greatly decreased production in 1909. Every large pool, except Caddo, recorded a smaller output than that for 1908. The dissolution of the Waters-Pierce Company by the Federal government was an important happening in 1909. (See TEXAS.

See also STANDARD OIL Co.) Illinois produced in 1909 only about 75 per cent. as much petroleum as in 1908. The Appalachian field, however, had a slightly increased output. The preceding table taken from the *Engineering and Mining Journal* indicates the production of crude petroleum in the United States in the various fields in 1908-9. See CHEMISTRY, INDUSTRIAL.

PETROLOGY. See GEOLOGY.

PETROSINO, JOSEPH. An Italo-American detective, assassinated in Palermo, Sicily, on March 13, 1909. He was born in the province of Salerno, Italy, in 1861, and came to the United States in 1865. He entered the police department of New York City in 1883, and after several years' service was made a detective. His knowledge of Italian and Sicilian criminals and his familiarity with their methods and characteristics made him a valuable agent for the detection of the criminals of these nationalities. He did notable work in discovering the perpetrators of many atrocious crimes. In 1905 a squad of detectives was established to deal especially with the blackmailers and murderers of the so-called "Black Hand" associations, which were composed chiefly of Sicilian outlaws and fugitives from justice. Petrosino was made chief of this squad, and he took up the work with a zeal and courage that continued until his death. He obtained the conviction of many of the leaders of the "Black Hand" societies, and, in doing this, incurred the violent hatred of the members of these bodies. In 1909 he went to Sicily on a secret mission, supposedly to study the emigration of criminals to the United States, and to bring about its cessation. In the performance of this duty he was shot in the Piazza Marina, Palermo, on the night of March 13. The assassin was not discovered. Petrosino was a power among the Italians of New York City, and was highly respected by his superior officers, and by those with whom he came in contact. His funeral was a public one and one of the most notable ever seen in New York City. It was attended by the mayor and other high officials, and the city flags were placed at half-mast.

PHILIPPINE ISLANDS. A colonial dependency of the United States, the most northerly group of the Malayan Archipelago. The total number of islands is 3141, the area of the total land surface is 115,026 square miles, and the total population, according to the census of 1903, was 7,635,426, of whom 647,740 were wild peoples. The average density of the population was 67 per square mile. The area and population of the most important islands are given in the accompanying table:

Island	Area in sq. miles	Population	Pop. per sq. m.
Bohol	1,441	243,148	169
Cebu	1,762	592,247	336
Davao	2,722	357,641	131
Iloilo	40,969	3,798,507	93
Marinduque	352	50,601	144
Masbate	1,236	29,451	24
Mindanao	36,292	499,631	14
Mindoro	3,851	28,361	7
Negros	4,881	460,776	94
Palawan	4,027	10,918	3
Panay	4,611	743,646	161
Samar	5,031	222,690	44

In 1907 the Bureau of Health took a census of Manila, which showed the population to be 223,542, as against 219,941 given by the official census in 1903. There was an increase of 18 per cent. in the number of Americans, 2 per cent. in the number of Filipinos, 14 per cent. in Spaniards, and 27 per cent. in other nationalities. The Chinese population showed a decrease of 15 per cent.

MINERAL RESOURCES. The Bureau of Science at Manila undertakes each year the preparation of an annual report of the mineral resources and production of the islands. The latest report available is that for 1908. From this publication it has been found that coal has been discovered in nearly every island on the archipelago, in many places associated with petroleum. This coal is sub-bituminous, having the appearance and specific gravity of lignite, but the carbon content and streak of the bituminous coal. Petroleum occurs on the seacoast of Tayabas province, and natural gas is found in Rizal province, and on the island of Marinduque. Cement, lime, building stone, abrasives, gypsum, phosphate, sulphur, salt, and mineral paints are among the other non-metallic minerals found in the islands. The most important of the metallic mineral resources of the Philippines is gold. It is found in most of the provinces of the Archipelago, but chiefly in the provinces of Benguet, Masbate and Ambos Camarines. The gold product in 1908 was 10,510 troy ounces, valued at \$200,000. This was a gain of over 100 per cent. over the production of 1907. The production in 1909 was estimated at 9000 fine ounces, valued at \$186,100. In addition, silver is found in the provinces of Benguet and Lapanto. Silver-bearing galena also occurs in Cebu, Marinduque and Ambos Camarines, but none of these deposits has as yet been developed. The silver production of 1908 was 2350 troy ounces. Copper ranks second among the mineral resources of the island, but practically none has been produced since the American occupation. This is due to the absence of smelters on the islands, and to the difficulties of transportation from the mountain regions where the ore has been found to the nearest port where the product can be shipped to foreign ports. Lead and iron exist in various places, but there has been no development in the mining of these minerals since American occupation. There are large deposits of excellent iron ore in the provinces of Bulacan and Rizal, but the difficulties of transportation and the lack of native coking coal have prevented the incoming of sufficient capital for production on a large scale. Among other minerals known to exist are kaolin, phosphate, salt and mineral waters. Clay, guano and other minerals are also found. Few of the better class of Filipinos take any interest in the development of the mineral resources of their own country. They are almost absolutely ignorant about mining and are apparently apathetic in regard to it.

AGRICULTURE. Owing to economic and other conditions the agricultural resources of the Philippines have not been developed as rapidly as their great extent would justify. It is believed, however, that as a result of the tariff revision made in 1909 and the passage of the Philippine tariff bill (see below) there will be a considerable increase in agricultural development. The chief agricultural products of the islands are abaca, mineral hemp, the fibre of a

fruitless variety of banana plant; cocoanuts, generally in the form of dried cocoanut meat called copra; sugar, exported in a form having the lowest degree of polarization known in commerce, and tobacco, exported in leaf, also in cigars and cigarettes. In addition to these, and in excess of most of them, except hemp, is rice, which constitutes the staple food of the inhabitants. In the first few years of the American occupation, owing to the insurrection and the continuance of guerilla warfare, and the prevalence of ladronism, many of the rice fields of the island lay idle and the importation of rice reached \$12,000,000, gold, or about .4 of the total imports. After the restoration of better conditions, the production of rice increased so that the amount imported in 1907 was only \$3,500,000, gold. Among other products are maguey and sisal corn, coffee, cacao, garden truck and fruits. The hemp industry suffered a considerable decline in 1909, as a result of the low price of manila hemp, and as a result, while the exports for the year were 147,621 tons, or 33,618 tons more than in 1908, this greatly increased quantity was marketed at a value of \$1,478,181 less than that received for the export production of 1908. The export of sugar in 1909 amounted to 110,604 tons, a reduction of 38,718 tons over the production of 1908, and of \$1,291,328 in value. The average price for the year was, however, slightly greater than that of 1908. There was much good land available for sugar cultivation in the Philippines, but there is very little of it as good as that of Cuba, and the amount of capital involved in developing it is so great that the possibility of a great extension is quite remote. Under the new tariff law, sugar to the amount of 300,000 gross tons was to be admitted to the United States free of duty. It is believed that this will result in a considerable increase in the amount of land cultivated for sugar. The value of the copra exported in 1909 was \$6,657,740, and the quantity, 103,896 tons, as compared with 75,211 tons in 1908. The average price was slightly less than in 1908, and the total crop showed an increased value of \$1,196,060. The provision of the new tariff in regard to tobacco resulted in an immediate increase in the quantity of cigars and other forms of manufactured tobacco exported to the United States. The figures for the calendar year were not available at the end of the year, and the figures for the fiscal year do not show the increase which came later. For the fiscal year the imports of tobacco amounted to \$2,792,253, as compared with a value of \$2,714,456 in 1908. There was a substantial increase in the quantity of maguey produced, but in the value of the cocoanut oil it exported there was a reduction. Coffee was formerly grown in considerable quantities in the islands, but efforts to produce it have been abandoned and hemp has been substituted as a more profitable crop. The development in agriculture during the American occupation has been delayed by a series of destructive typhoons, and also by an epidemic of the rinderpest, which carried off in two or three years 75 or 80 per cent. of the draft animals of the islands. For experiments carried on by the United States Department of Agriculture in the islands, see AGRICULTURAL EXPERIMENT STATIONS.

COMMERCE. The value of both Philippine imports and exports for the fiscal year ending June 30, 1909, fell somewhat below the average

of recent fiscal years. The imports amounted to \$27,792,397, and were \$3,125,960 less than in 1908, while the export total of \$30,993,563 was smaller by \$1,823,004. The uncertainty of pending tariff legislation toward the close of the year affected the export total to some extent in consequence of the important bearing of that legislation on sugar exports, tariff disturbance of trade appears to have figured to no important degree, and the general condition as indicated by the year's figures is to be explained rather by the widespread commercial depression which existed throughout the world.

The cotton trade of the islands for the year amounted to \$6,944,978. There was a reduction of \$1,066,856, as compared with 1908. All the leading classes of these imports figured with reduced totals, and all leading countries in this trade shared in the general decline except Japan, which took rank second to Great Britain. The imports from the United Kingdom amounted to \$3,499,452, as compared with \$4,161,487 in 1908, while purchases from Japan increased from \$515,615 to \$662,019, and those from the United States declined from \$685,919 to \$590,635.

The iron and steel trade was smaller by \$231,232, but the total imports from the United States slightly increased, amounting to \$818,991 of the total of \$1,933,475, while the United Kingdom and Germany, the only other competitors of any importance, bore the chief part of the year's decline.

Imports of coal declined in value from \$567,220 to \$461,465, though prices in the Australian market, from which the supply chiefly comes, averaged substantially the same. Recent active exploitation of Philippine coal mines presents a factor of growing importance in connection with declines in this trade.

A notable exception to the general reduction in the year's trade was in the group of meat and dairy products. In all of the leading items of this group, increased import values were recorded. Fresh beef reached the unprecedented figure of \$825,461, or \$372,904 more than 1908. This increase was, however, offset in large measure by a decline of \$300,000 in cattle imports, coincident with active quarantine and restrictive measures against the importation of diseased and infected cattle.

The total value of exports for the year was less than for any fiscal year since 1904, and in the net reduction of \$1,823,004, as compared with the figures of 1908, both the great hemp and sugar industries figured largely, exports of copra substantially increased, and tobacco made slight gains, while in the miscellaneous group of minor products there was a very general decline in values. The worst feature in the export trade was the low price of Manila hemp. The market conditions of this great staple—exclusively the product of the Philippines—were characterized by heavy shipments and steadily declining prices throughout the year. Export production reached the highest figure since American occupation, while prices averaged the lowest since 1899. The total exports for the year were 147,621 tons, or 33,618 tons more than for 1908, and yet this greatly increased quantity was marketed at a value \$1,478,181 less than that received for the exports of 1908.

Exports of sugar in 1909 amounted to 110,604 tons, a reduction of 38,718 tons, and of \$1,291,328 in value, as compared with those of 1908.

The smaller quantity of sugar marketed during the year was at a somewhat higher average price than that of 1908. The returns for the fiscal year, however, are not a very trustworthy index to production in the sugar industry. The crop is more coincident with the calendar year. The prospective tariff legislation providing for the free admission of sugar into the United States tended to accumulate and hold back stocks awaiting Congressional action. Exports to the United States were 20,948 tons.

Copra in 1909 ranked second in export value to hemp with a value of \$6,657,740. The average price was slightly less than in 1908, but the quantity increased from 75,211 tons to 103,890 tons, with an increased value of \$1,196,000. The greater part, as usual, found a French market, with Spain second. Exports to the United States are relatively unimportant, although there was an increase in 1909 over 1908.

Exports of tobacco in its various forms amounted to \$2,792,253. The value of the cigar trade was \$1,083,702, or almost the same as in 1908, but leaf exports showed a slight increase both in quantity and average price.

The share of the United States in the import trade of the islands amounted to \$4,691,770, and was \$387,717 less than 1908. Nearly half of the year's total was made up of leather, iron and steel, and of the two great American export staples, wheat flour and illuminating oil, while the balance was widely diversified. American goods constituted 17 per cent. of the total value of Philippine imports. That under the free trade conditions inaugurated by the new tariff of August 5, 1909, there will be a considerable increase in the volume of American shipments is to be expected, but to what extent the Philippine market will be supplied by the United States will depend upon how far the tariff differential will go toward compensating for the higher cost of American production in competition with other countries intrenched in the trade, and the extent to which the American manufacturer will press his opportunity and adapt his products to the native taste and requirements.

Of the year's exports, the United States took only a slightly smaller value than in 1908, and was credited with \$10,215,331. The large American demand for hemp has made the United States a good customer of the islands in the past, while limited free entry of Philippine sugar and tobacco, provides a much improved market for these staples, and free admission of other commodities furnishes a new stimulus to their production. A new era of activity and an increased volume of trade is, therefore, to be expected with the lapse of the restraining clause of the treaty of Paris and the establishment of practically unrestricted commercial conditions between the two countries.

The table given in the next column indicates the imports and exports from the Philippine Islands by countries for the fiscal years 1907, 1908 and 1909.

EDUCATION. The public educational work in the Philippines is carried on by the Secretary of Public Instruction, and is performed through the Bureau of Education, at the head of which is the Director of Education. The Archipelago is divided into 36 educational divisions, each in charge of a Division Superintendent, embracing in all 460 school districts, each in charge of a supervising teacher. The total number of

Countries	Imports		
	1907	1908	1909
United States....	\$5,155,359	\$5,078,487	\$4,691,770
United Kingdom..	6,467,910	6,109,588	5,408,819
Germany	1,655,288	1,933,808	1,731,071
France	851,385	821,133	947,064
Spain	1,756,667	1,654,480	1,340,101
Italy	258,855	249,489	163,706
Austria-Hungary	170,534	123,942	91,921
Belgium	293,055	342,365	299,941
Netherlands	221,898	166,604	249,982
Switzerland	605,196	751,524	580,466
China	2,760,145	2,499,459	2,262,037
Hongkong	305,503	463,970	356,661
Japan	1,009,944	1,111,863	1,441,063
British E. I.....	1,626,091	1,238,998	745,057
Dutch E. I.....	262,650	185,002	422,780
French E. I.....	3,474,236	5,746,432	4,275,398
Australasia	1,612,138	2,046,186	2,408,949
Other Countries..	809,021	894,077	305,611
Total	\$18,785,855	\$30,918,357	\$27,792,397

Countries	Exports		
	1907	1908	1909
United States....	\$12,079,204	\$10,323,233	\$10,215,331
United Kingdom..	8,749,214	8,870,923	5,846,890
Germany	788,018	602,085	491,986
France	2,689,593	3,905,870	4,261,382
Spain	1,789,640	1,719,612	1,989,931
Italy	155,284	248,013	491,608
Austria-Hungary	340,145	386,671	364,917
Belgium	244,759	516,336	1,114,335
Netherlands ...	313,056	193,759	297,069
Switzerland	2,429	3,420	5,934
China	2,035,475	1,527,604	1,968,842
Hongkong	2,551,902	2,436,188	2,268,701
Japan	477,070	491,684	328,029
British E. I.....	799,161	911,767	759,742
Dutch E. I.....	24,594	35,002	40,249
French E. I.....	56,820	12,345	11,017
Australasia	486,617	528,208	458,730
Other Countries..	130,376	103,839	78,870
Total	\$33,713,357	\$32,816,567	\$30,993,569

schools in operation during the fiscal year 1909, were as follows: Primary schools, 4194, an increase of 493 over 1908; intermediate schools, 193; secondary schools, 37; total, 4424, as compared with 3932 in 1908. The arts and trades, normal, domestic science, agricultural, and special insular schools are included in intermediate or secondary schools. The teaching force maintained directly by the Insular government is approximately 1601, of which 825 are American teachers. The force of Filipino Insular teachers was increased during the year to 786, of whom 662 were men and 124 were women. Of the men, 113 were engaged in district supervision; three men and one woman were giving secondary instruction, and 158 men and 50 women were teaching in intermediate schools, while 388 men and 78 women were teaching in primary schools.

The total enrollment during the school year was 570,502, as compared with 480,676 in 1908. Of those enrolled, 350,643 were boys, and 291,859 were girls. The average enrollment by month during the school year was 405,478, and the average monthly attendance was 321,415. By act of the Philippine Legislature, the sum of 3,300,000 pesos was appropriated for current expenses of the Bureau of Education during the fiscal year 1910, 3,275,000 pesos were appropriated. During the last two years there were either built or purchased by the government two provincial high schools, 22 domestic science, 10 agricultural schools, 18 schools of arts and trades, 101 intermediate schools and 548 primary schools.

School work among the non-Christian peoples

of the Philippines was continued in 1909 with decided success. For this work, 70,000 pesos were appropriated by the legislature. Schools for the Negritos, of whom there are estimated to be from 25,000 to 30,000, were opened in the provinces of Zambales and various other points in the islands. In these schools are taught reading, writing, knowledge of money values and simple business figuring. Schools were also started among the primitive Malayan people, among the Visayan islands and in Northern Mindanao. Industrial boarding schools and village primary schools were established among the Igorotes and other island people of Northern Luzon, of whom there are several hundred thousand. As fast as the native boys can be trained as teachers the village schools will be opened in the different communities. Among the subjects taught to the Igorots are basket-making, truck gardening, pottery, blacksmithing, carpentry, cloth weaving and brass casting.

POSTS AND TELEGRAPHS. On June 30, 1909, 553 post-offices were in operation, as compared with 540 at the beginning of the fiscal year. A free delivery municipal letter carrier service has been established in 35 municipalities. There were 79 money-order offices at the end of the year, an increase of 11. There were on June 30, 1909, 5161.2 kilometres of Insular telegraph lines, 3325.6 kilometres of telephone lines, and 1861.67 kilometres of cables. The total length of Insular telegraph, telephone and cable lines at the close of the fiscal year was 10,348.47. At the close of the fiscal year 1909 there were 251 postal savings banks in operation, a net increase during the year of six. There were 8752 accounts, as compared with 5389 at the beginning of the fiscal year. The amount of deposits in the bank on June 30, 1909, was 1,448,958 pesos, as compared with 1,031,994 pesos on June 30, 1908. Of the 8752 depositors in these banks 4927 were Filipinos.

RAILROADS. During the fiscal year 1909, the Manila Railroad Company completed 8.1 miles of grading; 30 miles of track were laid, and 41 miles of track were opened for operation. Toward the end of the year the railway suffered somewhat from a strike on the part of the engineers and firemen, which lasted for six weeks during April and May. The original concession to this company has been modified so as to require it to construct a line in Luzon to Baguio, and to construct in Southern Luzon the 135 miles necessary to close the gap between the Manila-Patangas line and the Albay line. On the Island of Panay, the Philippine Railway Company, during the fiscal year, graded 17.7 miles, laid 14.9 miles of track, and opened 20 miles of road for operation, making a total of 40 miles now open. The total railroad constructed in the Philippines in kilometres at the close of the fiscal years 1909, was as follows: Manila Railroad Company, 545.8, with 800.1 to be constructed; Manila Electric Railroad and Lighting Company, 39.8, with 5.2 to be constructed; Manila Suburban Railways Company, 9.9, with 10 to be constructed; Tarlac Railway Company, 20.6; Daet Tramway Company, 7.2; Philippine Railway Company, 159.4, with 204.22 to be constructed; Insular Coal Company, 12. The total length of road operated in the fiscal year was 794.7 kilometres, with 1061 to be constructed.

An act of the Philippine Commission created a board known as the Board of Rate Regulation,

for the regulation of rates charged by public service corporations. This board is composed of the Governor-General, Secretary of Commerce and Police, and the supervising railway expert, and the powers given are in general similar to those conferred on the Interstate Commerce Commission by Congress.

PUBLIC WORKS. The following sums were expended during the past fiscal year under the direction of the Bureau of Public Works: Roads and bridges, 5,288,028 pesos; buildings, 1,500,830 pesos; irrigation, 171,602 pesos; artesian wells, 129,345 pesos. This includes almost one-quarter of the entire revenue of the Insular, provisional and municipal governments. The length of the first-class roads on June 30, 1909, was 551.5 kilometres, an increase of 156.5 kilometres during the year, and with the Benguet road, making a total of 548.5 kilometres on the islands. At the present time there are nearly 700 kilometres of hard surface roads in the island. During the year 31 steel bridges, with a total span of 1080 metres were constructed, and 203 concrete bridges, with a total span of 2059 metres were constructed. During the year 42 buildings were completed at a cost of 1,141,700 pesos. The greater part of these are of reinforced concrete. The most noteworthy was the general hospital and medical school in the city of Manila, aggregating in cost 1,000,000 pesos. During the past year 50 successful artesian wells were drilled. These wells are very popular in the islands. During 1909 1,239,588 pesos were expended on port works, most of the work being at the Port of Manila, Ilo-Ilo and Cebu. Two steel and concrete wharves of the government, including the sheds were completed in Manila Harbor about June 1, 1909.

SANITATION. During 1909 there were many large sanitary projects and works of public utility completed than during any similar period since the United States took possession of the Philippines. Among these projects was the new gravity water system, the supply of which is collected from an uninhabited watershed. This was sufficiently advanced in November so that the water from this source had been exclusively used in the water mains of the city since that date, thus practically insuring the inhabitants of Manila against a serious outbreak of cholera or other grave intestinal diseases. During May the sanitary sewer of the city was ready for use, thus placing Manila in the front rank of Oriental cities in the question of sewage disposal. The capacity of the Cebu leper colony was greatly increased, so that it will now accommodate about 1900 lepers.

CONSTABULARY. The strength of the constabulary at the close of the fiscal year was 315 officers and 4573 men. The Director of the Constabulary and three Assistant Directors and three Inspectors are detailed from the United States army. The cost of maintaining the constabulary for the fiscal year was 3,089,942 pesos.

CITY OF MANILA. By an act of the Philippine Legislature in 1909, a change was made in the government of the city. The advisory board of thirteen members, which was composed of thirteen members, was abolished. The new municipal board was composed of three appointed members, one ex-officio member, and two elected members. The operation of the government of this city continued without notable change during the year, a distinctive feature having

a decided advance in the permanent betterment of sanitary conditions. The sewerage system was virtually completed at the end of May, 1909, and the work of making house connections was begun. (See *Sanitation*.) Marked advance was made during the year in the matter of permanent improvements, notably in paving the streets in the principal retail districts, and the construction of permanent bridges of concrete and steel in place of inadequate and temporary structures. The conditions as to public order continued good in the city during the year. A strike of the street railway employees, which was the most important occurrence of this kind, terminated without any serious disturbance. The Cavité Boulevard, as provided in the Burnham plan for beautifying the city, was under construction during the year.

POLITICS AND GOVERNMENT

One of the most important events in the history of the islands since the occupation by the United States was the enactment of the Philippine tariff bill by Congress. This bill had the earnest support of President Taft, who was intimate with conditions in the Philippines from his services there as Governor-General. In accordance with this act, goods, except rice, which are the growth, product or manufacture of the United States are admitted into the Philippine Islands free of duty, provided certain conditions are complied with. Similarly, with the exception of rice, all goods, the growth, product or manufacture of the Philippine Islands, may be shipped to the United States free of duty under the same conditions, with the added ones, first, that in any one year the number of cigars is limited to 150,000,000, the wrapper tobacco, and filler tobacco when mixed with more than 15 per cent. of wrapper tobacco, to 300,000 pounds, the filler tobacco to 1,000,000 pounds, and sugar to 300,000 gross tons; second, not more than 20 per cent. of the value of manufactured articles shall consist of foreign materials. This legislation was the result of a continuous effort extending over several years. The Philippine Islands, owing to conditions, were perhaps more in need of special consideration in the matter of tariff legislation than any part of United States territory. While there is a limit as to the amount of the sugar and tobacco, the product of the islands, which may be admitted free of duty to the United States, the limit is well beyond the present capacity of the islands, and admits of a healthy growth of these industries, while still retaining the great advantage of free entry to the United States market for the entire product suitable to the trade. An important result of the enactment of the law was to increase the price paid to the grower for his leaf tobacco from 10 per cent. for the poorer grades to 45 per cent. for the best grades. The price received by the producer of sugar for his product, likewise increased by 25 per cent. In the month of September all exports to the Philippine Islands of American goods was more than double that of the same month in the previous year. This increase was general, including practically every class of goods imported from the United States.

PHILIPPINE LEGISLATURE. The first Philippine Legislature convened for its second session February 1, 1909. Among the important measures passed at this session were the fol-

lowing: An act granting a new concession to construct additional railroad lines in the Island of Luzon; an act creating a code committee to have five years in which to compile and codify the laws of the islands; an act providing for the continuance of Spanish as the official language of the courts for an additional two years or until January 1, 1913; an act providing for the establishment of the province of Batanes; an internal revenue law changing the domestic rates of internal revenue duty on all alcoholic and tobacco products, whether coming from the United States or foreign countries. This act was conditional on the passage of the Payne tariff bill and was made effective by the proclamation of the Governor-General on August 7, 1909. An act was passed providing for the sale of public improvement bonds to the amount of 3,000,000 pesos. During this session 375 laws were introduced in both Houses, of which 47 were introduced from the Commission and 328 were Assembly bills. Of the bills introduced in the Assembly, 119 were passed and received by the Commission. A total of 72 laws were passed by the legislature during the session. On May 15 the legislature elected Benito Legarda and Manuel Quezon delegates to Congress.

MILITARY OPERATIONS. The only military operation of consequence during the year was the pursuit and capture in July of a Moro band of outlaws under their leader, Jikiri. This took place at Batian Island, south of Jolo. This band of outlaws had long given trouble in the Sulu Archipelago and after a sharp pursuit by government forces, they took refuge in a cave. Attempts were made to dislodge them on July 2 and 3. They made a stubborn resistance and it was necessary to exterminate the entire band. Fourteen soldiers engaged were injured and one died of his wounds. On June 15 members of the second company of constabulary at Davao, in the island of Mindanao, mutinied against their commanding officers, wounding one of them. An American planter was also killed. On December 9 fourteen of the mutineers were sentenced to death.

ADMINISTRATION. On November 23 W. Cameron Forbes, who had been appointed Governor by President Taft, was inaugurated at Manila. The day was made a general holiday and the buildings of the city were decorated. Governor Forbes in his inaugural address emphasized the necessity of a stable government. He said that the faith of the United States was pledged, that just and equitable laws, sound and uniform policy, and just and fair treatment in the courts should be assured to the Filipinos. He urged the necessity of interesting foreign capital in the islands. He declared that the development of the Philippines would proceed along the lines originally set forth, strictly adhered to by each successive administration and by the gradual processes in line of declared policy. He said that he was opposed to the admission of Chinese labor. Filipinos, he said, can do all the necessary work if properly paid and properly treated. The government should offer reasonable inducement to capital and should make more liberal the land and mining laws and lessen the restrictions which are at present discouraging investors.

On March 1, 1909, W. Morgan Shuster resigned as Secretary of Public Instruction and Newton W. Gilbert was appointed in his place. Trinidad H. Pardo de Tabera resigned as Com-

missioner on March 1, 1909, and Juan Sumulong, judge of the Court of the First Instance, was appointed to the vacancy thus created. Frank A. Branagan, Treasurer of the Philippine Islands, was appointed a member of the Commission on March 4, 1909. Charles A. Willard and James F. Tracey, Justices of the Supreme Court, resigned, and these vacancies were filled by the appointments of Sherman Moreland and Charles B. Elliot. Dr. William S. Washburn, director of civil service, and J. W. Beardsley, director of public works, resigned during the year and Dr. David P. Barrows, director of education, submitted his resignation, to take effect later. On May 7, James F. Smith, Governor-General, departed from the islands and turned over the duties of his office to Hon. W. Cameron Forbes, as Acting President and Governor-General. Mr. Forbes was appointed Governor-General and was inaugurated as noted above.

PHILOLOGICAL ASSOCIATION, AMERICAN. See PHILOLOGY.

PHILOLOGY, CLASSICAL. Though the sum of the work done in classical philology in 1909 was far from negligible, the progress made was in no instance sensational.

In the field of inscriptions we may note first of all that to *Inscriptiones Græcæ* (I. Kern has added a volume on Thessalian inscriptions. A new part of the *Inscriptiones Græcæ ad res Romanas pertinentes* contains 262 texts dealing mainly with Lesbos and Mysia. Worthy of attention also are H. Lattermann, *Griechische Bauinschriften*, E. Ziebarth, *Aus dem griechischen Schulwesen*, which sets forth the light thrown by epigraphy on the organization, curriculum, and endowments of Greek schools; W. S. Ferguson, "The Athenian Calendar," published in 1908 in *Classical Philology*, and several articles by H. Pomtow, published in *Klio* and in the *Berliner Philologische Wochenschrift*, discussing the history and topography of Delphi, with due regard to the evidence afforded by the inscriptions.

For an annual summary of the results in Roman epigraphy the reader is referred to *L'Année Epigraphique*, edited by MM. Cagnat and Besnier. In recent years the inscriptions found in Africa have been particularly interesting; see M. A. Merlin, *Nouvelles Archives des missions scientifiques et littéraires*, volume xiv. The *Corpus Inscriptionum Latinarum* has been enriched by volume iv. *Supplementum*, which gives wall inscriptions from Pompeii. Three more parts of Olcott's *Thesaurus Linguae Latinae Epigraphicæ* appeared; these carry the work down to *apis*.

Neither in the discovery nor in the publication of papyri did the year 1909 vie in interest with some of its recent predecessors. Most important was the publication in Part vi. of the Oxyrhynchus Papyri of some 300 lines, practically complete, of the Hypsipyle of Euripides; this has been described as the most noteworthy addition yet made by the papyri to the remains of Greek tragedy. These verses, which are so widely distributed throughout the play that it is possible to construct with some certainty the plot, have been published separately at Utrecht by van Herwerden, under the title *Euripidis Hypsipyle Fragmenta*. Parts 1-2 of Volume v. of *Berliner griechische Urkunden*, by W. Schubart, discuss Alexandrian docu-

ments (deeds, contracts, leases) of the time of Augustus. In the *Archiv für Papyrusforschung* Wilcken reviews recent publications of papyri. K. Sudhoff in *Ärztliches aus griechischen Papyrus-Urkunden* brings together documents bearing on medical matters. The new (seventh) edition of Bruns's *Fontes Juris Romani* has made good use of the papyri. W. Otto in *Priester und Tempel* exhaustively studied the organization and position of the Egyptian priesthood in the Ptolemaic and Roman periods.

In palaeography, reference may be made to the second edition, much enlarged, of Steffen's *Lateinische Paläographie*, described as the best work of its kind for the textual critic. Traube's *Vorlesungen und Abhandlungen* I. gives the history of palaeographical studies and an account of the chief libraries with Latin manuscripts. So, too, Weinberger's *Beiträge zur Handschriftenkunde* (Vienna) throws light on libraries containing important manuscripts and gives some account of individual manuscripts. Finally a manuscript of Juvenal not used by any editor of Juvenal, though its existence had not been unknown, is described in *The Classical Quarterly*.

In the field of religion and mythology mention must be made first of the fifth and concluding volume of Farnell's great work, *Cults of the Greek States*. The major part of the volume deals with the worship of Dionysus, who "for religion—as distinct from civilization—is the most momentous figure in the Greek polytheism," according to Professor Farnell; the book also gives summary accounts of the cults of Hermes, Ares, Hephaistos, Hestia, but does not include any discussion of the worship of heroes and ancestors or of the ideas associated with the cult of the dead. Another part of Roscher's great *Lexikon* of Mythology has appeared. W. Wundt's *Mythus und Religion*, which forms part of the second volume of the *Völkerpsychologie*, bears on the philosophy and psychology of Greek mythology. In the field of Roman mythology and religion the most important contributions are to be found in Roscher's *Lexikon*, mentioned above; the articles on *Quirinus* and *Romulus*, by Wissova and Carter, deserve special mention. In the same work Fr. Richter has a good paper on the deification and worship of Roma. Mention may be made also of Mulder, *De Comscientia notione quæ et qualis fuerit Romanis*, and of *De Precationibus Romanorum*, by G. Appel, in *Religionsgeschichtliche Versuche und Verarbeiten*. The last named work aims to give a collection of all extant Roman forms of *precatio*, together with a discussion of the times, objects and methods of *precatio*, the deities addressed and the epithets applied to the gods addressed. Von Domaszewski's *Abhandlungen zur römischen Religion* is a reprint of twenty-four papers published by him within the last two score years.

The text of the new Greek historian has been published separately by the Clarendon Press, under the title *Hellenica Oxyrhynchica*. Scholars now incline more decidedly to assign the fragment to Cratippus. An important work is D. G. Hogarth's *Ionia and the East*, whose thesis is that Ionian civilization is the product of a decadent Ægean and Danubian culture brought to Asia by successive immigrations from Europe and of a vivifying Ori-

ental culture communicated more immediately by the kindred Phrygian folk, but derived ultimately from the great Syro-Cappadocian nation, which in turn stood largely under Assyrian influence. W. H. Jones's *Malaria in Greek History* aims to determine the effect of malaria on Greek society. Parallel to this is another work by the same author, entitled *Dea Febria*, treating malaria in ancient Italy. Both books throw light on matters of religion.

In Roman history we have the fifth volume of the English translation of Ferrero's *Greatness and Decline of Rome*, and a collection of papers by him, called *Characters and Events of Roman History*. A very elaborate work in three volumes, entitled *The Roman Republic*, appeared in the very last days of the year, too late for exact appraisal here. Of much interest is a new historical inscription of the time of the Roman Republic (few inscriptions of the Republic have survived). This inscription records a grant of citizenship by Cn. Pompeius Strabo, father of Pompey the Great, to Spanish soldiers serving during the Social War at the siege of Asculum in Picenum. (See *The Classical Review* for 1909, page 168.) We may mention also W. Warde Fowler's *Social Life at Rome in the Age of Cicero*, a very suggestive book; Henderson's *Civil War and Rebellion in the Roman Empire*, a careful study of military history in 69-70 A. D., and E. G. Hardy's *Studies in Roman History*, second series. The new half-volume of Pauly-Wissowa's *Realencyclopädie* contains articles bearing on Roman history. Mention may be made finally of a very important American work, by G. W. Botsford, *The Roman Assemblies*, which treats elaborately the organization of the *populus*, at Rome, the tribes, the centuries, the classes, the several assemblies, in their organization and history, comitial procedure and legislation, comitial days, the preservation of statutes, and kindred topics. There is elaborate bibliographical information and a very full index. This book is of prime importance on all the topics of which it treats. Perhaps we may mention here T. E. Peet's *The Stone and Bronze Age in Italy and Sicily*.

In the field of grammar and linguistic science a general reference may be made first to an article in *The Classical Weekly* 2.50-52, by E. H. Sturtevant, entitled *Recent Literature on Comparative Philology*. To this paper we may add J. F. W. Müller's *Die Syntax des Dativs im Lateinischen*, a fragment published after the author's death. In the periodical called *Glotta* L. Methner published a paper on *Dum, dummodo, modo*, and another paper by the same author, entitled *Der Konjunktiv in den Konjunktivsätzen mit ut* appeared in *Neue Jahrbücher*. In *Glotta* also appeared an alphabetical list of the Latin and Greek words which had been discussed in various places in 1907 and 1908. Part ii., Section 1 of the second volume of Brugmann's *Grundriss der vergleichenden Grammatik* appeared; this deals with morphology. Albert Thumb's *Handbuch der indischen Dialekte* should not be omitted, nor should F. Solmsen's *Zur griechischer Wortforschung*, a very important contribution to Greek etymology.

In the field of lexicography we may note Scott's *Thesaurus Linguae Latinae Epigraphicae*, mentioned above, and the first part of a supplement to the great *Thesaurus Linguae Latinae*, which gives *Nomina Propria Latinae*.

In metrical matters we have to name J. W. White's very careful study of *The Iambic Trimeter in Menander*, published in *Classical Philology*, and two papers by J. A. Scott, entitled *The Influence of Metre on the Homeric Choice of Dissyllables*, in *Classical Philology*, and *Studies in Greek Sigmatism*. In the former it is shown that in epic verse dissyllables with a short penult are avoided, in the latter that sigmatism does not in fact appear to excess in Euripides. S. Sudhaus has published a small book called *Der Aufbau der Plautinischen Cantica*.

In the field of literature mention may be of a careful study of Pausanias, by C. Robert, in a work entitled *Pausanias als Schriftsteller*, J. W. Duff's *A Literary History of Rome, From the Origins to the Close of the Augustan Age*, H. E. Butler's *Post-Augustan Poetry*, most helpful, in spite of limitations, because we have not had in English any work treating this subject in detail, Plessis's *La Poésie Latine*, Mahaffy's *What Have the Greeks Done for Modern Civilization?* Croiset's *Aristophanes and the Political Parties at Athens* (a translation by J. Loeb), and Professor Gilbert Murray's Inaugural Lecture at Oxford, *The Interpretation of Ancient Greek Literature*. Lack of space forbids the mention in detail of important editions of classic authors, aside from a very valuable edition of the *Poetics* of Aristotle, by Ingram Bywater.

We may conclude this review, all too brief, of a great body of conscientious and valuable work by mentioning H. St. John Thackeray's *Grammar of the Old Testament in Greek*, which has been characterized as the only systematic grammar in English of that form of the Greek language known as the *Koiné*, and of a book by an American scholar, A. T. Robertson, *A Short Grammar of the Greek New Testament*.

PHILOLOGY, MODERN. This branch of the linguistic science received comparatively scanty treatment during the year 1909; and the progress made may be conveniently summarized by a bibliographical synopsis of the principal discussions that appeared during this period, together with a number of works issued in 1908.

In the department of Germanic philology S. Feist completed his *Etymologisches Wörterbuch der gotischen Sprache*, the fifth edition of F. L. K. Wiegand's *Deutsches Wörterbuch*, the *Siebenbürgisch-sächsisches Wörterbuch*, and the German edition of H. Falk and A. Torp's *Norwegisch-dänisches etymologisches Wörterbuch* were continued, and F. Kluge began the seventh edition of his *Etymologisches Wörterbuch der deutschen Sprache*. Late in 1908, moreover, F. Wrede issued the first part of his important *Deutsche Dialektgeographie*, which is based on Wenker's *Sprachatlas des deutschen Reichs*. In the division of Old High German J. Franck published his *Altfränkische Grammatik* (Göttingen, 1909) and P. Habermann his *Metrik der kleineren althochdeutschen Reimgedichte* (Halle, 1909); and mention may here be made of two publications of the preceding year which belong in this category: H. Reichert's *Deutsche Familiennamen nach Breslauer Quellen der dreizehnten und vierzehnten Jahrhunderte* (Breslau, 1908) and K. Hofer's *Beiträge zur Kenntnis des Sprachgebrauchs im Volkslied der vierzehnten und fünfzehnten Jahrhunderte* (Berlin, 1908).

In Modern High German, except for V. Moe-

ser's *Historisch-grammatische Einführung in die frühneuhochdeutschen Schrift dialecte* (Halle, 1909) and K. Heinrich's *Studien über die Namengebung im Deutschen seit dem Anfange des sechszehnten Jahrhunderts* (Strassburg, 1908), work has been carried on almost entirely in dialectology. Here belong A. Egger's *Die Laute der Silltaler Mundart* (Innsbruck, 1909), J. Schiessel's *Niederbayerische Mundart in der Gegend von Eichendorf* (Passau, 1909), H. Tschinkel's *Grammatik der Gottscher Mundart* (Halle, 1908), H. Schönhoff's *Emsländische Grammatik* (Heidelberg, 1908), E. Gerbet's *Grammatik der Mundart des Vogtlandes* (Leipzig, 1908), and E. Halter's *Die Mundarten im Elsass* (Strassburg, 1908).

Turning to the general English field, Anglo-Saxon research was represented by C. Richter's *Chronologische Studien zur angelsächsischen Litteratur auf Grund sprachlich-metrischer Kriterien* (Halle, 1909), B. Thün's *Das Verbum bei Orm* (Leipzig, 1909), E. Rottzoll's *Aussterben alt und mittel-englischer Diminutivbildungen im Neuenglischen* (Heidelberg, 1909), E. Brenner's *Der altenglische Junius-Psalter: die Interlinear-Glosse der Handschrift Junius 27 der Bodleiana zu Oxford* (Heidelberg, 1909), U. Lindelöf's *Die altenglischen Glossen im Bosworth-Psalter* (Helsingfors, 1909), and the first part (text and glossary) of the same scholar's *Altenglische Interlinearversion des Psalters in der Handschrift 427 der erzbischöflichen Lambeth Palace Library* (Helsingfors, 1909), to which may be added, G. Hackmann's *Kürzung langer Tonvokale vor einfachen auslautenden Konsonanten in einsilbigen Worten im Alt-, Mittel- und Neuenglischen* (Halle, 1908), W. Stolz's *Vokalismus der betonten Silben in der altnordhumbrischen Interlinearversion der Lindisfarner Evangelien* (Bonn, 1908), R. Obruch's *Laut- und Flexionslehre der fremden Eigennamen in den Werken König Alfreds* (Strassburg, 1908), W. Oberdörffer's *Aussterben altenglischer Adjektiva und ihr Ersatz im Verlaufe der englischen Sprachgeschichte* (Kiel, 1908), A. Lorz's *Aktionsarten des Verbums in Beowulf* (Würzburg, 1908), J. von der Wurth's *Metrisch-Sprachliches und Textkritisches zu Cynewulfs Werken* (Halle, 1908), A. Bdlker's *Critical Contribution to Early English Syntax* (first series, on *of*, *at*, *by*, *to*, numerals, adverbs, and conjunctions; Christiania, 1908), B. Tschischwitz's *Metrik der angelsächsischen Psalmenübersetzung* (Breslau, 1908), and A. Böhlen's *Zusammengehörige Wortgruppen getrennt durch Cäsar oder Verschluss in der angelsächsischen Epik* (Bonn, 1908).

In Middle and Modern English there has been far less activity. In the former department mention may be made of P. Hoffmann's *Das grammatische Genus in Layamons Brut* (Halle, 1909), A. Püttmann's *Syntax der sogenannten progressiven Form im Alt- und Frühmittelenglischen* (Marburg, 1908), and B. Rossmann's *Zum Gebrauch der Mode und Modalverba in Adverbialsätzen im Frühmittelenglischen* (Kiel, 1908); while Modern English is represented by O. Jespersen's *Modern English Grammar on Historical Principles* (part 1, on sounds and spelling; Heidelberg, 1909), E. Eekwall's *Zur Geschichte der stimmhaften interdentalen Spirans im Englischen* (Lund, 1908), and M. Müller's *Reim- und Ablautskomposita des Englischen* (Strassburg, 1908). In the department of Norse philology prac-

tically the only work of note is the second volume of A. Kock's *Svensk Ljudhistoria* (Lund, 1909).

Still more scanty has been the attention devoted to the Romance languages, but from the late gleanings of 1908 there may be recorded the general survey of the Romance and Celtic languages and literatures by H. Zimmer, K. Meyer, L. Stern, H. Morf, and W. Meyer-Lübke in the Leipzig series *Kultur der Gegenwart*, the first volume (on phonology and morphology) of Meyer-Lübke's *Historische Grammatik der französischen Sprache* (Heidelberg, 1908), the third volume of K. Nyrop's *Grammatique historique de la langue française* (Copenhagen, 1908), A. Dauzat's *Langue française d'aujourd'hui* (Paris, 1908), and B. Horluc and G. Marinet's *Bibliographie de la syntaxe du français (1840-1905)*, (Paris, 1908); while more special topics are discussed in A. Gatscha's *Altprovenzalische und altfranzösische Diminutiva* (Vienna, 1908), R. Ekblom's *Étude sur l'extinction des verbes au prétérit enmsi et enmsi en français* (Upsala, 1908), A. Förster's *Avoir und être als Hilfsverba beim intransitiven Zeitwort in ihrer Entwicklung vom Alt- zum Neufranzösischen* (Darmstadt, 1908), and T. Rant's *Einfluss der französischen Revolution auf den Wortschatz der französischen Sprache* (Darmstadt). French dialectology and Provençal are considered in A. Verrier and R. Onillon's *Glossaire étymologique et historique des patois et des parlers de l'Anjou* (2 volumes, Angers, 1908), J. Ducamin's *editio princeps* of Pierre Alphonse's *Disciplines de clergie et de moralité's* (a fourteenth or fifteenth century work in Gascon; Toulouse 1908), and the first volume of P. Roman's *Lei Mount-Joio: vocabulári dei prouverbí e loucucien prouverbialo de la lenga prouvençalo* (Avignon, 1908). Spanish receives attention in the first part (on phonology) of A. Espinosa's *Studies in New Mexican Spanish* (Chicago, 1909), and, from the literary side, in A. González-Blanco's *Historia de la novela en España desde el romanticismo á nuestros días* (Madrid, 1908); and Rumanian studies are furthered by G. Wiegand's *Linguistischer Atlas des dacorumänischen Sprachgebietes* (Leipzig, 1909).

A noteworthy advance in Celtic philology is marked by the completion of the first volume (on phonology) of H. Pedersen's *Vergleichende Grammatik der keltischen Sprachen* (Göttingen, 1909), while Old Irish receives an admirable grammar in R. Thurneysen's *Handbuch der Alt-irischen* (Heidelberg, 1909; a chrestomathy was to appear early in 1910). Welsh is represented by S. J. Evans's *Studies in Welsh Phonology* (Newport, 1909), and Gaelic by the first part (on phonology) of P. Wieckert's *Die Sprache der einzigen schottischen Bibelübersetzung von Murdoch Nisbet* (Königsberg, 1908), while late in 1908 E. Berner's *Slavisches etymologisches Wörterbuch* commenced to appear. Mention should finally be made of work in a more outlying member of the Indo-Germanic linguistic stock in Europe, the Albanian, which receives a new grammar in Pekner's *Grammatik der albanesischen Sprache* (Vienna, 1908), and a new Italian-Albanian dictionary in F. Bianchi, P. Budi, P. Bogdani, and S. C. Kristoforidi's *Fiabner i rri i shqypës perbajsh prëe shocniet t'bashkimit* (Scutari, 1908).

PHILOSOPHICAL ASSOCIATION. AMERICAN. An association of professors of philosophy and others interested in philosophy.

founded in 1902. Its object is the "promotion of the interests of philosophy in all its branches, and more particularly the encouragement of original work among its members. The Association holds annual meetings at the different universities, and these are devoted to the reading and discussion of papers. The official annual *Proceedings* of the Association, containing an address by the president, and summaries of the papers and discussions, are published in the *Philosophical Review*, and reprinted separately for distribution among the members. The annual meeting in 1909 was held at Yale University on December 27-29. At this meeting seventeen papers were read. The president's address was given by Professor John Grier Hibben, of Princeton University, on "The Philosophical Aspects of Evolution." The subject for the general discussion was "The Problem of Time in its Relation to Present Tendencies and Philosophy." The following officers were chosen for the year 1910: President, Professor Charles M. Bakewell, of Yale University; Vice-President, Professor Arthur O. Lovejoy, of the University of Missouri; Secretary-Treasurer, Professor E. G. Spaulding, Princeton University; members of the Executive Committee (in addition to the above), Professor F. J. W. Woodbridge, of Columbia University; Professor W. H. Sheldon, of Dartmouth College; Professor Norman Smith, of Princeton University, and Professor Frank Thilly, of Cornell University. The next meeting will be held at Princeton University during the Christmas holidays of 1910. The Association numbers 175 members.

PHILOSOPHICAL SOCIETY, AMERICAN.

A learned society founded by Benjamin Franklin in 1743 "for the cultivation of useful knowledge and the advancement of liberal arts and sciences." It was the first learned society formed on the American continent. Ordinary meetings are held on the first and third Fridays of each month from October to May, inclusive. The Society also holds annually in the month of April a general meeting. The papers presented to the Society at the annual meeting are published either in its *Transactions* in quarto or in its *Proceedings* in octavo form. The Society awards two medals, the Magellanic, a gold medal to the author of the best discovery of the most useful invention relating to navigation, astronomy or natural philosophy, and the Henry W. Philips prize of \$2000, which is awarded from time to time for the best essay in science and philosophy of jurisprudence. The annual meeting for 1909 was held in Philadelphia, April 22, 23 and 24. Among the papers read were the following: "The American-British Atlantic Fisheries Question," by Thomas Willing Balch; "The Evolution of the City of Rome from Its Origin to the Gallic Catastrophe," by Prof. Jesse B. Carter, of Rome; "Magic and Religion," by Prof. Edward W. Hopkins; "J. J. Rousseau, a Precursor of Modern Pragmatism," by Prof. Albert Schinz, of Bryn Mawr College; "New Evidences as to the Physical Basis of Heredity," by Prof. Edwin Grant Conklin, of Princeton University; "The Volcanic Formations of Java," by Henry G. Bryant; "The Past History of the Earth as Inferred from the Mode of Formation of the Solar System," by Dr. T. J. J. See, of the U. S. Naval Observatory, Mare Island, Cal. On April 23 was observed the

centennial of Charles Darwin's birth, and the fiftieth anniversary of the publication of the "Origin of the Species." James Bryce, the British Ambassador, gave personal reminiscences of Charles Darwin and addresses were made by George Lincoln Goodale, of Cambridge, and Prof. George Stuart Fullerton, of New York. The officers of the Society for 1909 were William W. Keen, President; William B. Scott, Simon Newcomb and Albert A. Michelsen, Vice-Presidents; I. Minis Hayes, Arthur W. Goodspeed, James W. Holland and Amos P. Brown, Secretaries, and Henry La Barre Jayne, Treasurer.

PHILOSOPHICAL SOCIETY, WESTERN.

A learned society organized at Kansas City in 1900. Its aim is to stimulate an interest in philosophy in all its branches and to encourage original investigation. The Association, which started with thirty students and teachers of philosophy, has grown rapidly. Its membership now approaches 100 and extends across the country. Its meeting in 1909 was held in St. Louis in April under the auspices of Washington University, and commemorated the fiftieth anniversary of the Hegelian movement of philosophy in the Middle West, as indicated by the founding of the *Journal of Speculative Philosophy* in St. Louis by William T. Harris, the late United States Commissioner of Education, and others. The executive committee of the Association in 1909 consisted of Professor C. E. Seashore, University of Iowa, President; B. C. Ewer, Northwestern University, Secretary and Treasurer; F. C. Sharp, University of Wisconsin; A. O. Lovejoy, University of Missouri, and G. A. Tawney, University of Cincinnati. For several years the annual reports of the Association were printed in the *Philosophical Review*. They now appear in the *Journal of Philosophy, Psychology, and Scientific Methods*.

PHILOSOPHY. There was no marked change in the nature of contemporary philosophical thinking during 1909. The epistemological problems, which have held the centre of the stage since the days of Kant, are still attracting the most attention, and idealism remains the "most influential and powerful" system, as Professor Stein declares in his *Philosophische Strömungen der Gegenwart*. At the same time the idealistic, rationalistic and monistic teachings of the dominant school are being vigorously attacked. Professor William James, who is the most prominent opponent of the "old truths," has brought out two new books within the year, one of which, *A Pluralistic Universe*, attacks the philosophical monism of the day, while the other, *The Meaning of Truth: A Sequel to "Pragmatism,"* largely consisting of a collection of articles published before, continues the warfare against rationalism and idealism. The periodicals of the different countries have not ceased discussing the so-called "American" philosophy; even the Germans, who ignored the controversy for a long time, are beginning to show some interest in it. The German translation of Professor James's *Pragmatism* has been followed by a translation of his *Psychology*. Professor Stein devotes considerable space to the new movement in his *Philosophische Strömungen der Gegenwart*, and a little book, *Der Pragmatismus*, has been written on it by

Jacoby. Among some of the other recent contributions to the subject are the articles of Montague in the *Journal of Philosophy*, of G. E. Moore in the *Proceedings of the Aristotelian Society*, of Paulhan in the *Revue philosophique*, and Pratt's book, *What is Pragmatism?*

Interest in Kant and the post-Kantians, however, has not abated. New editions of the works of the great idealistic philosophers are being published; Schelling is being translated into Italian and Schopenhauer into French. The Western Philosophical Association (q. v.) devoted its Easter meeting, which was held in St. Louis to commemorate the semi-centennial of philosophy in the West, to papers on Hegelianism. An able book by the well-known Italian Hegelian, Croce, has been translated into German under the title *Wahres und Falsches in Hegel's Philosophie*. Other works bearing on German idealism which have appeared during the year are: Kronenberg, *Geschichte des deutschen Idealismus*, vol. i. (vol. ii. is to take up German idealism from Kant to Hegel); Chamberlain, *Kant* (2d ed.); Arnold, *Beitrag zu dem Material der Geschichte von Kant's Leben*, etc.; Sternberg, *Versuch einer Entwicklungsgeschichte des kantischen Denkens*; Nelson, *Untersuchungen über die Entwicklungsgeschichte der kantischen Erkenntnistheorie*; Prichard, *Kant's Theory of Knowledge*; van Biéma, *L'espace et le temps chez Leibniz et chez Kant*; Jordan, *Kant's Stellung zur Metaphysik*, etc.; Menzel, *Die Grundlagen der fichteschen Wissenschaftslehre*, etc.; Lasson, *Beiträge zur Hegelforschung*; Dittmann, *Der Begriff des Volksgeistes bei Hegel*; O'Sullivan, *Kant and Hegel*; Siskind, *Der Einfluss Schellings auf die Entwicklung von Schleiermachers System*.

It would be impossible to mention here the many articles and books on the theory of knowledge which have appeared in 1909. Nearly all the papers read at the last two annual meetings of the American Philosophical Association were on epistemological questions, and the subjects of the general discussion in both years were of the same nature: "Realism and Idealism" in 1908, and "The Problem of Time" in 1909. Besides the books in this field already noted above, we call attention to the following: Kastil, *Studien zur neuern Erkenntnistheorie*, I.: *Descartes*; Uphues, *Geschichte der Philosophie als Erkenntnistheorie*; Hermant and van de Waele, *Les principales théories de la logique contemporaine*; Croce, *Logica come scienza del concetto puro* (2d ed.); Fonsegrive, *Essais sur la connaissance*; Störing, *Einführung in die Erkenntnistheorie*; Messer, *Einführung in die Erkenntnistheorie*; Kern, *Das Erkenntnisproblem und seine kritische Lösung*; Schwartzkopf, *Das Wesen der Erkenntnis*; Maticevic, *Zur Grundlegung der Logik*; Stern, *Das Denken und sein Gegenstand*; Espinas, *L'être et connaître*; Mauté, *Le rationalisme comme hypothèse méthodologique*. The student of epistemology will also find the following helpful: Kreibitz, *Die intellektuellen Functionen*; Miller, *The Psychology of Thinking*; Titchener, *Lectures on the Experimental Psychology of the Thought Processes*; Uphues, *Erkenntnistheoretische Psychologie*; Marshall, *Consciousness*; Maier, *Psychologie des emotionalen Denkens*; Sollier, *Le doute*; Jaensch, *Zur Analyse der Gesichtswahrnehmungen*; Lévy-Bruhl, *Les fonctions men-*

tales dans les sociétés inférieures; Langfeld, *Thier- und Menschenverstand*; and Bohn, *La naissance de l'intelligence*. The following discuss the logic of science and scientific conceptions: Volkmann, *Erkenntnistheoretische Grundzüge der Naturwissenschaften*; Brunhès, *La dégradation de l'énergie*; Baumann, *Der Wissensbegriff*; Enriques, *Les problèmes de la science et de la logique*; Bouty, *La Vérité scientifique*; Thomas, Tannery, and others, *De la méthode dans les sciences*; Haas, *Die Entwicklungsgeschichte des Satzes von der Erhaltung der Kraft*; Bieganski, *Medizinische Logik*. Symptomatic of the increasing interest in logical studies are the many discussions on the foundations of mathematics which have been appearing. Among the articles we mention those of Poincaré, Brunschwig and Reymond in the *Revue de métaphysique et de morale*; Milhaud in the *Revue philosophique*; Haldane in *Mind*; Jansen in the *Archiv. f. Gesch. der Phil.*; Glasenapp in *Vierteljahrsschrift f. wiss. Phil.*; Baumann in *Ann. d. Naturph.*; Brown, Rogers, and Shelton in the *Journal of Philosophy*. Books on the subject are Pesloun, *Les systèmes logiques et la logique*; Lechallas, *Étude sur l'espace et le temps* (2d ed.); Reymond, *Logique et mathématiques* (1908); Voss, *Über das Wesen der Mathematik* (1908).

Philosophy in the sense of metaphysics, or the attempt to reach a systematic conception of the universe, has not been neglected during the past year. For Croce as for Hegel "logic as the science of pure concept" is the philosophy of philosophy. Münsterberg, whose *Philosophie der Werte* appeared in 1908, offers the same neo-Fichtean views in an English version under the title of *Eternal Values*. Lablache, who shows the influence of Lotze, presents his theory of the world in a new book: *Knowledge, Life, and Reason: An Essay in Systematic Philosophy*. H. Jones has written a clear and interesting little book, *Idealism as a Practical Creed*. Books of the same trend are MacColl's *Man's Origin, Destiny, and Duty*; Eucken's *Geistige Strömungen der Gegenwart* (10th ed. of *Grundbegriffe der Gegenwart*); and E. Naville's last work, *Les systèmes de philosophie ou les philosophies affirmatives*. All these thinkers are advocates of some form of idealism or spiritualism. We have already spoken of James's *A Pluralistic Universe*, which opposes all these systems in method and results. It sets up the method of direct and immediate experience. "Philosophy is more a matter of passionate vision than of logic, . . . hence only finding reasons for the vision afterwards." Reality if not irrational is at least non-rational in its constitution. We must go behind the conceptual function altogether and look to the more primitive flux of the sensational life for reality's true shape. "Philosophy should seek this kind of living understanding of the movement of reality, not fall into science in vainly patching together fragments of its dead results." This method, which may call sensationalistic, anti-rationalistic, mystical and voluntaristic, yields an atomistic or pluralistic philosophy. The Frenchman Boex-Borel, in his *Le pluralisme expérimental*, la discontinuité et l'hétérogénéité des phénomènes, declares that pluralism deserves to be developed methodically and persistently, and that the results of experience have never been unfavorable to it. The following books of

also prove of interest to philosophers: Schulz, *Die Maschinentheorie des Lebens*; Kern, *Das Problem des Lebens*; Petrucci, *Essai sur une théorie de la vie* (1908); Kingsland, *Scientific Idealism*; or *Matter and Force and Their Relation to Life and Consciousness*. In the second volume of his Gifford Lectures, *The Science and Philosophy of the Organism*, Driesch continues his protest against the mechanical theory of life, and works out his own neo-vitalistic theory. Students of metaphysics will also be interested in the discussions of the theory of evolution brought out on occasion of the Darwin centenary: *Fifty Years of Darwinism: Modern Aspects of Evolution*; Centennial Addresses, etc.; Darwin and *Modern Science*, etc.; Poulton, *Charles Darwin and the Origin of the Species*; Baldwin, *Evolution and the Humanities* (1910); Wagner, *Geschichte des Lamarckismus*. The April number of the *Popular Science Monthly* and the May number of the *Psychological Review* are devoted to different phases of Darwinism and its relations to different sciences.

The number of works on ethical subjects and problems bearing on ethics is very large, showing how intense the interest in this field has become during recent years. Not only are the general principles of morality being subjected to renewed examination, but special problems are being taken up and treated in a critical spirit. We note also a growing interest in the questions of moral education and a remarkable increase in studies on social and political ethics. Of the more general works that of the Italian Croce, *Filosofia della pratica*, follows Hegelian lines. The books of Read, *Natural and Social Morals*; Perry, *The Moral Economy*; and Davies, *The Moral Life*, are characterized by the common purpose to remain close to the facts of moral life, or, to express it in the language of Read, by the endeavor "to study morals as a matter of fact and experience, instead of merely worrying the traditional abstract ideas in the fashion of a scholastic age." The subject is to be studied in the light of inductive biology, psychology, and anthropology. Sarlo and Calò, *Principii di scienza etica*, also treat ethics as an independent normative science in which the fact of valuation is the highest fact. For Rodrigues, *Le problème de l'action*, there is but one problem for ethics, the problem of conduct, which consists in placing us *en rapport* with others. Similar in spirit to the above is Unold, *Aufgaben und Ziele des Menschenlebens* (2d. ed.). Souriau, *Les conditions du bonheur*, is a representative of the old-fashioned utilitarianism. According to Praignes's *Critique des conditions de l'action* (2 vols.), ethics has for its necessary basis a critique of the conditions of action, which must be sought just as Kant sought the conditions of knowledge. Cronin, *Science of Ethics*, and Wilms, *Philosophia moralis* (1908) treat the subject from the neo-scholastic standpoint. Ottery's *Christian Ideas and Ideals* is an outline of Christian ethical theory. An Italian Nietzsche as appeared in the person of Leo Sera, whose book has been translated into English under the title: *On the Tracks of Life: The Immorality of Morality*. Urban's *Valuation: Its Nature and Its Laws*, is a painstaking psychological analysis of our worth-experiences, together with an attempt at an outline of a

coherent philosophy of values. Berguer's *La notion du valeur* (1908) also analyzes the notion of value and shows its importance for theology. The second volume of Hastings's *Encyclopedia of Religion and Ethics* contains many articles on ethics.

Books on special phases of ethics are: Chollet, *La morale est elle une science?*; Jouslain, *Le fondement psychologique de la morale*; Parodi, *Le problème moral et la pensée contemporaine* (1910); Aslan, *L'expérience et l'invention en morale* (1908); Leroy, *Esquisses de morale et de sociologie*; Baumann, *Le cœur humain et les lois de la psychologie positiviste*; Stumpf, *Vom ethischen Scepticismus*; Schlesinger, *Der Begriff des Ideals* (1908); Paulhan, *La morale de l'ironie*; Petersen, *Kausalität, Determinismus und Fatalismus*; Sarlo and Calò, *La patologia mentale*, etc. The student of ethics will also be interested in the following: Nadejde, *Die biologische Theorie der Lust und Unlust* (1908); Ribot, *Problèmes de psychologie affective*; Joteyko and Stefanowska, *Psycho-physiologie de la douleur*; C. and W. Stern, *Erinnerung, Aussage und Lüge in der ersten Kindheit*.

Books on the evolution of morals, moral ideals and the history of ethics are: Allier, Belot and others, *Morales et religions*; Eucken, *The Problem of Human Life* (translation); Nordau, *Der Sinn der Geschichte*; Lafargue, *Le déterminisme économique de K. Marx*; Hughes, *The Ethics of Jewish Apocryphal Literature*; King, *The Ethics of Jesus*; Kinkel, *Der Humanitätsgedanke*; Spranger, *W. von Humboldt und die Humanitätsidee*; M. Wundt, *Geschichte der griechischen Ethik*, Verweyen, *Das Problem der Willensfreiheit in der Scholastik*; Ethik; Mausbach, *Ethik des hl. Augustinus*, 2 vols. Rand's *Classical Moralists* in a useful selection of extracts from the works of the great ethical writers.

Books on moral education and allied fields are: Payot, *The Education of the Will* (trans.); Leclère, *L'éducation morale rationnelle*; Spiller, *Moral Education in Eighteen Countries*, and *Papers on Moral Education*; Scott, *Social Education*; Natorp, *Sozialpädagogik*, and *Philosophie u. Pädagogik*; O'Shea, *Social Development and Education*; Münch, *Kultur u. Erziehung*; Rowe, *Habit-Formation and the Science of Teaching*; M. Mackenzie, *Hegel's Educational Theory and Practice*.

Among the many works on social, legal and political ethics and sociology the following will prove of service: Tünies, *Die Sitt*; Sully-Prudhomme, *Le lien social*; Duguit, *Le droit social*, etc.; Becher, *Der Darwinismus u. die soziale Ethik*; Novicow, *Le critique du darwinisme social*; Aslanian, *Les principes de l'évolution sociale*; Wallas, *Human Nature in Politics*; Traub, *Ethik u. Kapitalismus*; Kostanecki, *Arbeit u. Armut*; Beveridge, *Unemployment*; Maxwell, *La crime et la société*; Parsons, *Responsibility for Crime*; Provost, *De la prostitution des enfants*; Kohler, *Lehrbuch der Rechtsphilosophie*; Picard, *Le droit pur*; Vecchio, *Il concetto della natura e il principio del diritto*; Kohler, *Der Vergeltungsgedanke*, etc.; Oppenheimer, *Criminal Responsibility of Lunatics*; Wassermann, *Begriff u. Grenzen der Kriminalstatistik*; Ettinger, *Das Verbrecherproblem*; Duprez, *Etude médico-social sur les questions de responsabilité atténuée*; Thomas, *Source Book of Social Ori-*

gins; Cooley, *Social Organization*; Peabody, *Approach to the Social Question*; Roberty, *Sociologie de l'action*; de Greef, *Précis de sociologie*; Ruta, *La psiche sociale*; Mataquin, *La psychologie sociale de G. Tarde*; Davis, *Psychological Interpretations of Society*; Fouillée, *Le socialisme et la sociologie réformatrice*. Volume iii. of Mayer's *Statistik u. Gesellschaftslehre* contains moral statistics.

A number of good books on æsthetics have been published, among them the following: Volkelt, *System der Ästhetik*, vol. II. (1910); Croce, *Esthetic as Science of Expression and General Linguistic* (trans.); Christiansen, *Philosophie der Kunst*; Cornelius, *Elementargesetze der bildenden Kunst*; Gordon, *Esthetics*; Neumann, *Einführung in die Ästhetik der Gegenwart*; Lalo, *Les sentiments esthétiques and L'esthétique expérimentale contemporaine* (1908). The second volume of Wundt's great work on *Völkerpsychologie* is devoted to a genetic psychological study of Art.

In the history of philosophy the great work of the year is the universal history of philosophy (*Allgemeine Geschichte der Philosophie*, appearing as vol. v. of *Kultur der Gegenwart*), which deals with the philosophy of primitive peoples, Oriental philosophy (Hindoo, Islam, Jewish, Chinese, Japanese), and European philosophy. The contributors to this volume are scholars of the highest rank: Wundt, Oldenberg, Goldziher, Grube, Inouye, von Arnim, Baumecker and Windelband. There have also been published, besides the many historical works referred to in the course of this article, the following: Hasse, *Von Plotin zu Goethe*; Bryk, *Entwicklungsgeschichte der Naturwissenschaft*; a translation of de Wulf's *History of Medieval Philosophy*; Grabmann, *Die Geschichte der scholastischen Methode*; Bonilla y San Martin, *Historia de la filosofía española hasta el siglo XII.*; Morselli, *Introduzione alla filosofia moderna*; Lindsay, *Studies in European Philosophy*; Perrier, *The Revival of Scholastic Philosophy in the XIX. Century*; Bodrero, *Eraclito*; Zucante, *Socrate*; Taylor, *Plato*; Hartmann, *Plato's Lehre des Seins*; Diés, *La définition de l'être et la nature des idées dans le Sophiste de Plato, and Le cycle mystique*; Stewart, *Plato's Doctrine of Ideas*; J. M. Watson, *Aristotle's Criticisms of Plato*; Whithy, *The Wisdom of Plotinus*; Elsee, *Neoplatonism in Relation to Christian Philosophy*; Duhem, *Études sur Leonardo de Vinci*, 3 vols. (1906-9); Strowski, *Pascal et son temps*, 3 vols. (1907-8); Ollion, *La philosophie générale de J. Locke*; Thomas, *Spinoza's Individualismus u. Pantheismus*; Fraser, *Berkeley and Spiritual Realism*; Kabitz, *Die Philosophie des jungen Leibniz*; Daville, *Leibniz historien*; Dumont, *Nicolas de Béguelin*; Van Biëma, *M. Knutzen, La critique de l'harmonie préétablie*; Dedieu, *Montesquieu et la tradition*; Lederbogen, *F. Schlegel's Geschichtsphilosophie*; Cramausse, *La philosophie religieuse de Schleiermacher*; Tisserand, *L'anthropologie de Maine de Biran*; Kowaleski, *Schopenhauer u. seine Weltanschauung*; Richter, *Schopenhauer*; Duherme, *Comte et son œuvre*; Lacombe, *Taine, historien et sociologue*; Nève, *La philosophie de Taine*; Palhoriès, *Rosmini* (1908); Mügge, *Nietzsche*; Richter, *Nietzsche, sein Leben u. sein Werk*; Hoffding, *Danske filosofier*; Windelband, *Die Philosophie im deutschen Geistesleben des XIX. Jahrhun-*

derts; Prezzolini, *B. Croce*; Steenborg, *Bergson's intuitive Philosophie*.

PHLORIDZIN (syn. **PHLORIDZINUM**, **PHLORIZIN**) is a glucoside obtained from the root of the apple, pear, cherry, etc., and has the chemical formula $C_{22}H_{34}O_{10} + 2H_2O$. It occurs as minute white slightly pinkish crystals, of a silky texture, or as a pale yellow light crystalline powder, odorless and having at first a bitter and then a sweet taste. It is freely soluble in hot water. Phloridzin destroys the malarial parasite, and is recommended as an antiperiodic in malaria, but its chief use is as a means of testing the functional activity of the kidney. When administered to man or animals it produces glycosuria of renal origin, in addition to polyuria. To test the permeability of the kidney 1-12 of a grain of the drug is dissolved in 15 minims of a 0.5 per cent. solution of sodium carbonate and injected hypodermatically. Glucose should appear in the urine in from 15 minutes to a half hour and the secretion of sugar continue for two to four hours. The urine of each kidney is collected separately.

PHOSPHATE. See **FERTILIZERS**.

PHOSPHORIC ACID. See **FERTILIZERS**.

PHOTOGRAPHY. **RECENT PROGRESS.** IX. The most conspicuous advance in the last few years has been in color photography, which has not, however, as yet yielded the results that had been hoped for it. The aniline pigments which under proper conditions yield such beautiful results are fugitive, and certain chemical reactions, producing slight changes in the composition of the sensitive material, are frequent causes of unsatisfactory reproductions of the original colors. Reports of improved methods are constantly being published, and doubtless in time a perfected color process will be found. Nevertheless advances were being made and more sensitive and improved screen plates for taking photographic transparencies in colors were made. The "autochrome" plate developed by Lumière was improved so that its development was rendered more simple and could be carried on by yellow light, instead of in complete darkness as was at first demanded. Other color screen plates were successfully used during the year, and in some cases plate and screen were combined instead of being separate as was previously necessary.

Progress was also made during the year with telegraphic transmission of pictures and photographs, and the Korn telautograph where a half-tone photograph is printed on metal foil and attached to a revolving cylinder, over which passes a steel tracing point, was still further developed during the year. In this device the current is interrupted by the glue lines of the half-tone print on the tin foil, and at the distant station a silver wire rises and falls so that a slit through which light passes to the sensitive film on a drum revolving synchronously with the original transmitting drum, makes a record on the sensitive paper, which is subsequently developed. A number of tests of this invention were made during the year over considerable distances, and indicated the possibilities of the method.

Increased attention was paid to nature photography, and interesting studies were made of animals in their native haunts, under unusual conditions. An important series of pictures were made by A. Radclyffe Dugmore in the

"big game country" of Africa, in which giraffes, rhinoceroses, hippopotamuses, lions and tigers were photographed at close range by the use of special apparatus as well as with telephotic lenses. In certain cases the batteries of cameras were arranged to be automatically exposed by flash-light under electrical control. Important improvements were also made in subaqueous photography, and the study of fishes and other marine life was carried on under new conditions.

Along with the increased use of moving pictures, there have been a number of attempts to secure photographic reproduction in the natural colors. During the year apparatus invented by Barricelli, Friese-Greene, and Urban and Smith, was shown where the principle of presenting colored images to the eye in rapid succession was utilized. Various images were colored red, yellow and blue, and the successive presentations followed so rapidly that the eye, being unable to separate them, combined them into one picture. The application of the moving picture principle to the microscope, which had been suggested previously for physiological investigation, was developed in connection with the ultra-microscope by Dr. Comandon. This invention was considered of considerable educational importance, inasmuch as such processes as the struggle of the blood corpuscles with their microbe enemies could be actually represented.

A curious instance of the application of moving pictures is shown by the fact of its use by the United States Reclamation Service to demonstrate practical operations in irrigation and farming. The contrasting of improved methods with those less satisfactory, when shown by such means, is naturally of great value to the land owner or farmer.

During the year photographic surveying, which for ten years or more had been used with considerable success in Canada and India, found increased application. By photographic methods a rapid survey could be made, especially in mountainous country where rugged peaks and other important landmarks could be identified readily on the plates. In fact, photographic methods are now deemed essential in all rapid topographic surveys on a large scale, and the accuracy attained is being constantly increased. Not only the directions and distances are readily obtained, but also altitudes that are sufficiently accurate for many purposes. Standard types of instruments, capable of precise adjustment, are in use, and special lenses have been devised.

It has been found more economical in topographical work, where maps are constantly undergoing revision, to photograph the "mother map," so to speak, and prepare small editions for use until the final results are obtained. The making of very large photographs is now in use by the United States Bureau of Forestry, and a specially designed apparatus has been installed through which a sheet of sensitized paper, six feet in width, may be passed and undergo automatically the progressive operations of printing, toning, washing, and drying. The preservation of printed or written documents of value, as in insurance offices, is a growing application of photography. Electric mounting presses for the purpose of fixing the print on a card have recently been introduced at large establishments. Professor R. W. Wood, of the Johns Hopkins University, has shown

some interesting effects in photography made by exposure both to the infra-red and ultra-violet invisible rays of light.

PHOTOTHERAPY. A tendency toward restriction in the employment of the Roentgen ray rather than a widening of its application, was noticeable during 1909. Its use in all but very superficial cancers was practically abandoned. It is now believed that only in external conditions, such as epithelioma of the skin and rodent ulcer can cure be anticipated. Elischer and Engel have investigated the influence of the rays on the blood since 1904. Leukemia, a disease of the blood characterized by swelling of the lymphatic glands, enormous enlargement of the spleen and an undue multiplication of the white cell elements of the blood, is, according to these authors, definitely influenced for the better, and in some cases symptomatically cured by exposure to the X-ray. Early treatment is advised, beginning with short exposures to avoid toxic symptoms, which may be produced by the destruction and absorption of large numbers of blood cells in the body. Treatments are intermittent and close watch is kept on the patient's blood and weight. The main point is to work with as small a dosage of the rays as possible. No case is recorded of permanent recovery, and it is stated that in time the rays lose their influence, the tissues becoming immune to their action. A case of syringomyelia was cured symptomatically by Holingren and Wiman. Aubertin and Bordet found it possible to destroy the thymus gland in animals without altering the other organs in the vicinity of the gland, and therefore suggest the employment of the X-ray in tumors of the thymus.

Radium was used in 1909 to an extent only limited by the extreme scarcity and the high cost of this curious element. The mines at Johannesthal in Austria produced about 15 grains of the pure substance, which it was intended to sell in the form of radium bromide to charitable institutions and for scientific purposes, at the rate of \$244 per portion of 1-60th of a grain. It is known that certain substances have the power of absorbing and retaining radium emanations for a greater or less time, so that they themselves become radioactive, and search is being made for same material that may be charged with radial activity and used therapeutically in the same way as radium itself. Water, it is well known, can be rendered radioactive by contact with radium or pitchblende, and certain springs are believed to owe their curative virtues to minute amounts of this element contained in them. These waters, however, soon lose their potency when removed from contact with radium. Water artificially charged is of low potency and loses its efficacy in a few days; nevertheless such water has been used internally and for baths with good results. A more promising substance is coconut charcoal. According to Shober, this substance will absorb and retain radium emanations and can be raised to a high degree of activity compared with water (200 or 300 times). He has succeeded in taking photographs with charcoal so charged. The practical application of this discovery lies in the cheapness with which the agent can be prepared. The charcoal retains its activity for at least two weeks and can be charged over and over again. It may be

cathode, and further that the rays on this side are more penetrating than those on the side nearer the cathode. This dissymmetry has been investigated by Stark, who concludes from it that the old ether-pulse theory of cathode rays is untenable. On the other hand, Sommerfeld has attempted to show by theoretical computation that the dissymmetry determined by experiment agrees closely with that to be expected according to the latter hypothesis. The question is still an open one, and can only be settled by further experimentation.

LIGHT. After several years of work Michelson has succeeded in perfecting a machine capable of ruling gratings whose resolving power is comparable with that of the echelon spectro-scope, the increased precision of the ruling making possible the use of larger gratings. The grating spectro-scope has the advantage over the echelon of much greater ease of manipulation and little confusion of lines due to spectra of different orders. For this reason the perfecting of this ruling machine may be looked upon as a distinct advance in spectral work.

The magnetic rotation of the plane of polarization in the infra-red has been investigated by U. Myer. He found that in crystals of fluor-spar, rock-salt, and sylvite the amount of rotation decreased continually with increasing wavelength to the longest wave-length used (about nine thousandths of a millimetre). This is in agreement with Drude's theory of the Faraday effect, but does not show definitely which of his two developments of that theory, the one based on the assumption of molecular currents or the other on the Hall effect, is correct.

R. W. Wood, continuing his researches on sodium vapor, has extended the principal Balmer's series of double spectral lines for this metal as far as the forty-eighth line ($n=50$). The most complete series hitherto observed was that of hydrogen, of which thirty lines had been found in the solar spectrum. The last twenty-two lines in the sodium series are crowded into a spectral range less than that between the two D lines.

SOUND. Lloyd and Agnew have carried out at the Bureau of Standards, experiments bearing on the old controversy as to whether the quality of a note is influenced by variations in the phases of its overtones. Alternating currents of harmonically related frequencies produced by specially designed generators were combined in a telephone. The alternators were arranged in two sets with two driving motors, one set being used to furnish the fundamental, while the other set produced the overtones. When the two driving motors were run slightly out of synchronism, a gradual shifting of phase between the fundamental and the overtones occurred, but no difference in the quality of the note produced by their combination could be detected. This result is in agreement with the view held by Helmholtz and Kelvin.

LOWEST TEMPERATURE. In Leyden, H. Kamerlingh Onnes has succeeded in liquefying helium and found its boiling-point at atmospheric pressure to be -268.5°C . By cooling liquid helium by rapid evaporation at low pressures, he obtained a temperature lower than 2.5° absolute. The critical pressure of helium was found to be approximately 2.75 atmospheres.

PINCHOT, GIFFORD. See FORESTRY; LANDS, PUBLIC, and UNITED STATES, Administration.

PITTSBURG. See PENNSYLVANIA.

PITTSBURG, UNIVERSITY OF. An institution of higher learning, in Pittsburg, Pa. founded in 1890 as the Western University of Pennsylvania. The name was changed to its present form in 1908. The University includes a college of liberal arts, a graduate school, school of engineering, department of law, department of medicine, summer school, college of pharmacy, department of dentistry and school of mines. It also conducts a system of evening schools. The attendance in 1908-9 was 1243, of whom 108 were in the undergraduate department, 371 in the medical college, and 231 in the college of pharmacy. The faculty numbered 183. There were in the library 12,000 volumes. The new School of Mines building, the foundation for which was laid in 1908, was completed in May, 1909, at a cost of over \$200,000. The productive funds of the University amounted in 1909 to \$507,478, and the total income was \$206,308. The chancellor is Samuel Black McCormick.

PLAGUE. During 1909 the plague was in abeyance in India, and the deaths numbered hundreds instead of thousands; but apprehensions exist that it may reappear in epidemic form. In 1896 the present pandemic began, in the Bombay Presidency, where it caused 2219 deaths, the mortality increasing to 54,000 the following year. The disease spread steadily until 1906, when a great decrease occurred, and gave rise to hopes that the scourge had expended its virulence, but in 1907 it broke out with fresh vigor and caused more deaths than ever—about 1,316,000. In 1908, the deaths fell to 149,000. It is estimated that the total mortality since the disease appeared is 6,200,000. See VITAL STATISTICS.

Recent investigation in India and in California have demonstrated that fleas play an important part in conveying plague from rats to man. The common rat flea of India (*Pulex pallidus*) is especially implicated in that country. The United States Public Health and Marine Hospital Service has, since 1907, collected and identified fleas from different sea ports, in connection with plague prophylaxis. It has been demonstrated that the *Pulex pallidus* has a wide distribution, and is common in the United States.

PLANETS AND PLANETIODS. See ASTRONOMY.

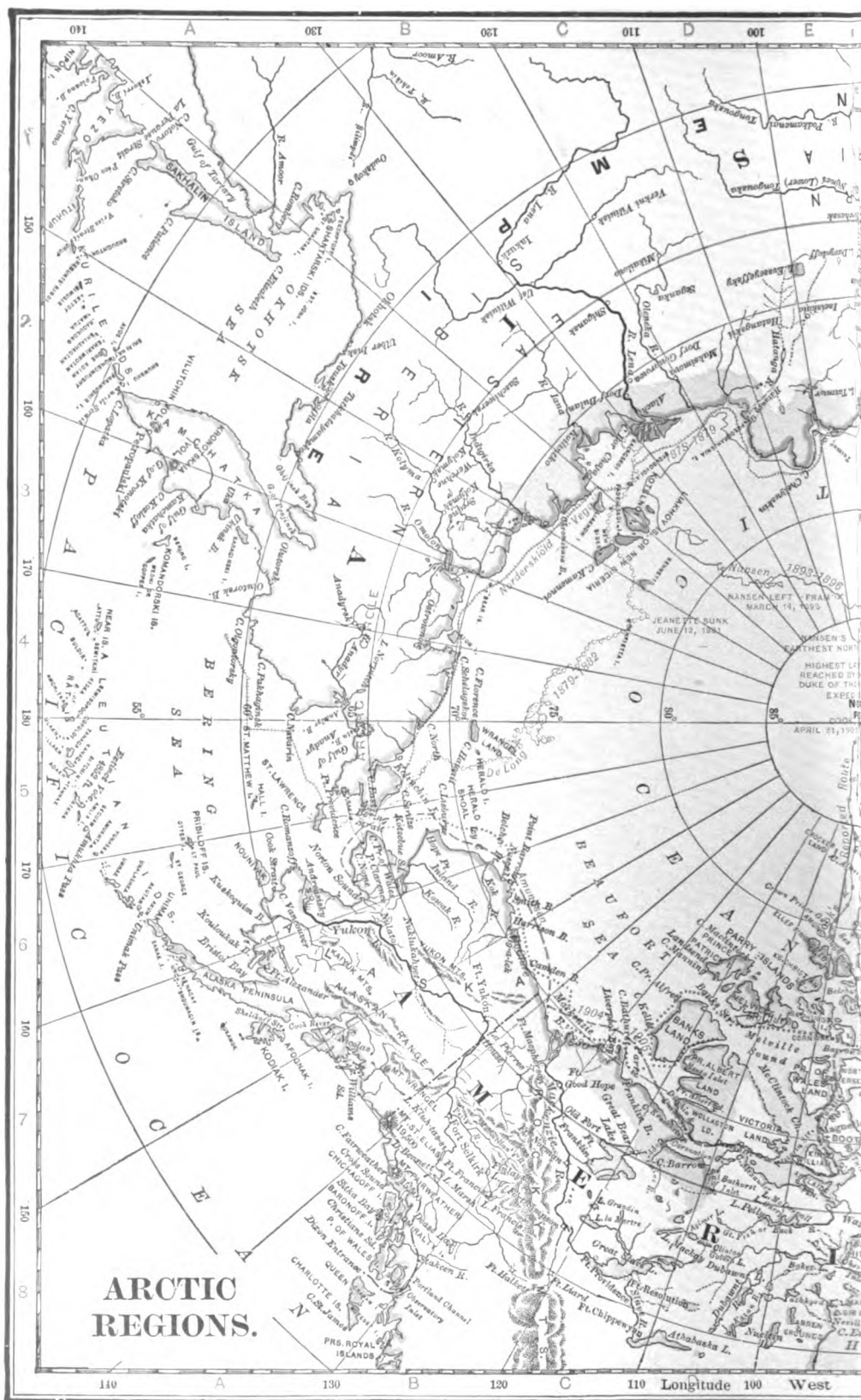
PLANT BREEDING. See BOTANY.

PLANT DISEASES. See BOTANY.

PLANT PATHOLOGY. See BOTANY.

PLANT PHYSIOLOGY. See BOTANY.

PLATINUM. Platinum is obtained in the United States as a by-product in placer gold mining. All the metal produced is recovered from placer mines in Oregon and California. The production in 1908 amounted to 750 fine ounces, valued at \$14,250. This was nearly double the quantity obtained in 1907. The imports of platinum from other countries, chiefly Russia, in 1908, amounted to 4237 pounds of platinum ore, valued at \$1,095,754, and 134,119 pounds of manufactured products, valued at \$1,229,873. The price of ingot platinum per troy ounce in New York markets varied in 1908 from \$18.20 to \$24.50. The production in 1909 in the United States, so far as could be ascertained at the close of the year, was about the same as in 1908. Most of this was recovered from the mint where certain quantities are recovered every year as a by-product in the ref-



ing of gold and silver. The largest quantity of the metal is produced in Russia, where in 1909, taking the actual returns for eleven months and estimating the output for December, the *Engineering and Mining Journal* estimates that 184,240 ounces of crude metal were produced, containing 83 per cent. of platinum. This is an increase of 16.7 per cent. over the production of 1908. The gain was made chiefly in the latter months of 1909, the activity in mining being stimulated by the larger demand for the metal and the higher prices realized for it. The concentration of the industry made much progress during the year, and the Russian platinum industry is now almost entirely carried on by a syndicate. The average price for platinum per troy ounce in New York in 1909 was \$24.87. It ranged from \$22.43 in July to \$29.50 in December. These prices are for refined platinum. The average price for crude metal at St. Petersburg was \$20.02 per troy ounce. The production in Russia in 1908 is estimated by the United States Geological Survey at 130,000 troy ounces. A considerable amount of the metal is found in Colombia, where in 1907 36,738 troy ounces were exported. The use of platinum in jewelry has increased in recent years. It is without doubt the best material for mounting diamonds. It is also used extensively in the electrical industries for alloys.

PLAYGROUND ASSOCIATION, NATIONAL. See EDUCATION IN THE UNITED STATES.

PLAYGROUNDS. The third annual congress of the Playground Association of America was held at Pittsburg in May. The scope of the activities of the Association is shown by the committee reports, which covered the following subjects: Athletics for boys, playground equipment, folk-dances, playgrounds as social centres, play in institutions, story-telling on playgrounds, State laws, and playground statistics. The meeting developed sentiment in favor of a campaign for the substitution of significant exercises for the noisy and random celebrations of national holidays.

A Council of One Hundred was organized in New York City early in the year as an auxiliary to the Parks and Playgrounds Association, with Mr. Richard Watson Gilder as president. Following a report on dance halls, some forty children's welfare societies drew up a petition and a model license law to be presented to the State Legislature. This was followed in March by similar action by the Ethical Social League of New York.

Under the Massachusetts law of 1908 authorizing cities to submit to popular vote the question of establishing playgrounds, thirty-eight out of the forty cities and towns holding such elections voted favorably. The total vote was 153,651 for, and 34,284 against. The movement was well supported by the Civic League and the Playground Association. Many cities at once began the practical work of instituting playgrounds, the law requiring these to be in readiness by July, 1910. Following careful inquiry in the fall, Boston made provision for open air class rooms and more adequate open-air play for anæmic and physically defective children.

POE CENTENARY. See CENTENARIES.

POE, JOHN PRENTISS. An American lawyer, died October 14, 1909. He was the nephew of Edgar Allan Poe, and was a graduate of Princeton University. He was at one time Attorney-

General of the State and Dean of the Law School of the University of Maryland. He was the author of the *Poe Code* and other legal books, and was for ten years the adviser of the Democratic State Central Committee. He codified the public general laws of Maryland in two volumes in 1905.

POIRE, EMMANUEL; better known under his pen-name of Caran d'Ache (Russian: "lead pencil"). A French artist and caricaturist, died February 26, 1909. He was born in Russia in 1858, and at twenty years of age went to France, where he became a citizen. His drawings for illustrated supplements of *Figaro* first attracted public attention to him, and gave him a fame which he continued to hold until his death. His humorous drawings of animals were probably never excelled in the skill of the draughtsmanship. The work of Caran d'Ache was widely copied in American, English, and other European periodicals.

POLAR RESEARCH. The achievements of the year were marked by two events which were the most brilliant in polar annals. On April 6, 1909, Commander Robert E. Peary, U. S. N., reached the North Pole, the goal that, for centuries, had baffled all efforts to attain it. On January 9, Mr. Ernest H. Shackleton, of England, after traveling far south over the Antarctic continent, reached a point within about 111 statute miles of the South Pole in 88° 23' S. Lat. and 162° E. Long.

The whole of Peary's previous arctic career was a preparation for this final, complete success. His vessel, the *Roosevelt*, his equipment and his plans seem to have reached the nearest approach to perfection that has yet been attained. He was also favored by unusually excellent natural conditions for his final attempt on the Pole. His scientific assistants, Ross G. Marvin, of Cornell, George Borup, of Yale, and D. B. McMillan, of Worcester, Mass., rendered services of much importance; and wholly apart from his attainment of the Pole, Peary's last work in the Arctic added facts of the greatest significance to our knowledge of that region.

Leaving Etah, at the southern gate of the waterway to the north, on August 17, 1908, the *Roosevelt* reached Cape Sheridan, on the shore of the Arctic Sea, on September 1. Here the party wintered. Many loads of supplies for the polar trip were sledged westward to Cape Columbia, the most northern point of the Grant Land coast; hunting parties brought in large supplies of fresh meat (musk ox, bear and deer), and the scientific staff took tidal and meteorological observations from Cape Bryant on the Greenland coast to Cape Columbia. On February 15, 1909, the first of the five detachments of the North Pole sledge party left Cape Sheridan for Cape Columbia, the entire expedition numbering 66 men, 140 dogs and 23 sledges. On March 1, they set out on the sea ice for the north. There being very little ice drift to change the direction of the course, the whole route from Cape Columbia was practically due north. Water leads were the chief impediment on the northern march, the total delays on this account being about two weeks. Pressure ridges were not so formidable as Peary had found them further east. With organization and personnel in the highest state of efficiency the pace was remarkably rapid. The distance from the mainland to the Pole was 475 statute miles, and it was covered at the average rate of

over 13 miles a day, including the long detentions. This was nearly double the distance per day covered by the Italian expedition (the Duke of the Abruzzi) on its sledge march towards the Pole.

As the explorer advanced, the supporting parties, one after another, were turned back and, for the final dash of 140 miles, there were left only five men (Peary, Matt Hensen, his colored servant, and three Eskimos), 40 dogs and five sledges. This distance was covered in five forced marches of forty hours, and the Pole was reached on April 6. During the 30 hours spent in taking observations there the minimum temperature was -30° F., the maximum, -12° and, for 20 hours, the sky was cloudless. No animal or other kind of life was found there and Peary describes the ice at the Pole as "chalky white," and practically level. The return journey to land was made by forced marches at the phenomenal rate of about 20½ miles a day. This burst of speed was facilitated by the lighter sledge loads, and the fact that the party returned along its outward route, sleeping in the snow houses that were then erected. The one unfortunate occurrence was the accidental death, by drowning, of Professor Marvin.

The most significant feature of the scientific work on this journey over the sea ice, was the soundings which were secured, at intervals, from Cape Columbia to the North Pole. All known arctic lands rise from the continental shelf, as physical geographers call the submarine platform surrounding continental coasts and sometimes extending far away from them, from 600 to 1000 feet below the surface of the sea. It has long been regarded as probable that no arctic land exists beyond the point where the continental shelf ends and the sea bottom descends to oceanic depths. The first sounding on which Peary has definitely reported was made about fifty miles north of Cape Columbia, where bottom was reached at 660 feet, which apparently shows that the shelf is rather wide north of that Cape. Peary's second sounding, not far from the eighty-fifth parallel, gave a depth of 1950 feet, and he had then passed beyond the shelf, and the ice upon which he stood was over oceanic depth. The third sounding was within five miles of the pole, where all the wire, 1500 fathoms, was sent down without touching bottom. The depth of the ocean, near the North Pole, therefore, exceeds 9000 feet. The northern apex of the world is amid waters that descend to a deep oceanic basin such as those which Nansen discovered in the Asian Arctic. This is the first decisive proof of the existence of great oceanic depths to the north of the American Arctic lands, and the existence of any considerable land mass still unknown, in that field, is very doubtful.

A few weeks before Peary's return home, Dr. Frederick A. Cook arrived at Copenhagen, on a Danish vessel from Greenland. He claimed to have reached the North Pole on April 21, 1908. His story was accepted as true in Copenhagen where he was received with high honors. It was known that he went to northwest Greenland in the summer of 1907, with Mr. J. R. Bradley, ostensibly on a hunting cruise. The latter returned home leaving Cook, with a considerable quantity of supplies, in camp a little north of Peary's old base station at Etah. About sunrise on February 19, 1908, Cook with a

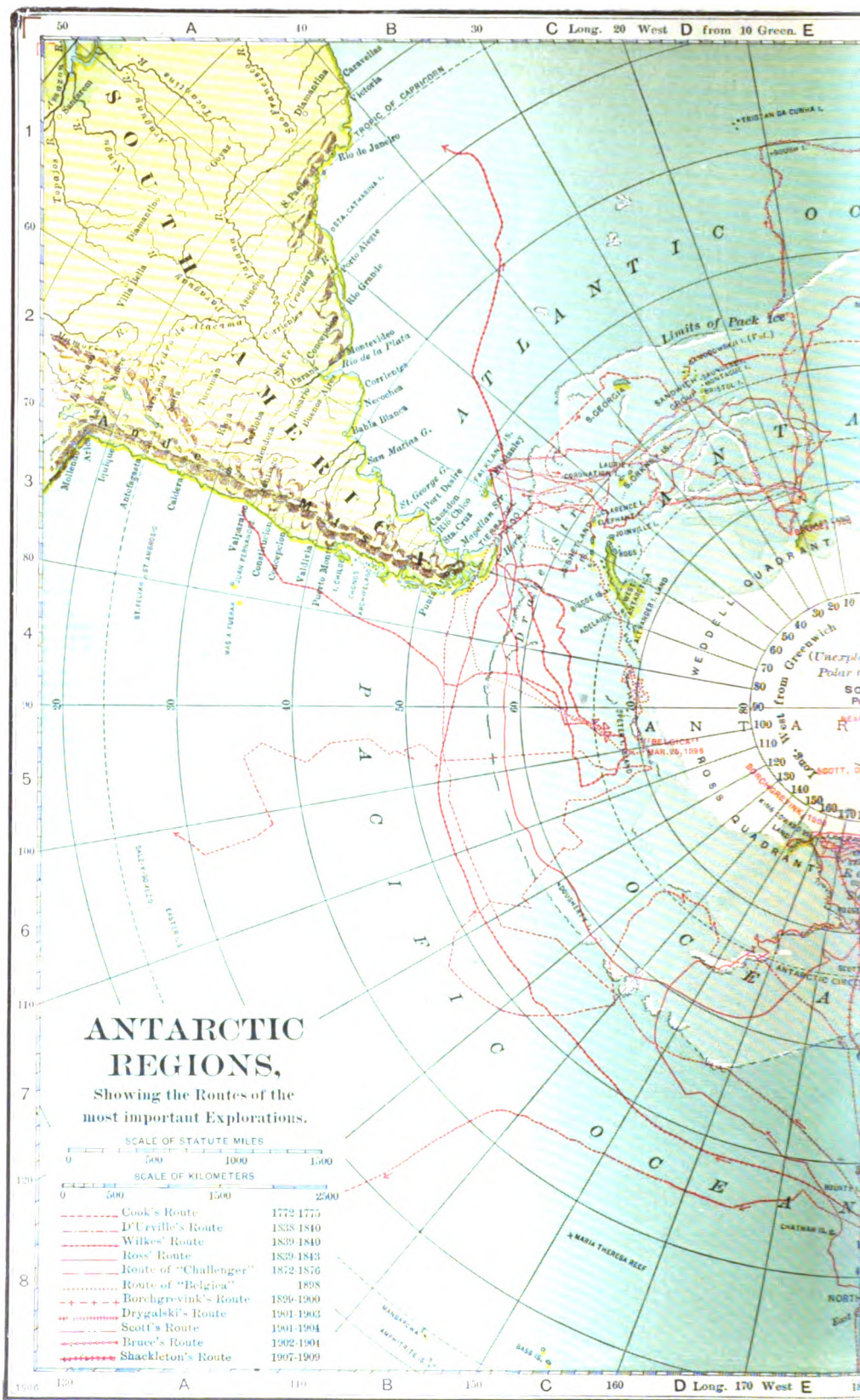
party of Eskimos started west with their sledges on a journey across Grinnell Land to the outlet of Nansen Sound in the Arctic Ocean. After obtaining a good supply of fresh meat in Grinnell Land, Cook set out on the sea ice. He claimed that he sent back his last supporting party after three days, and then pushed on to the north with his two best Eskimo and 28 dogs. In the reports of his journey, which he published after his return to civilization, Cook gave a somewhat detailed, but still rather hazy, account of his advance to the Pole and back, his camp at Cape Sparbo on Jones Sound, during the winter of 1908-9, and of his return first to the Smith Sound region to leave his Eskimos, and then to the Danish settlements in South Greenland, where he took ship for Denmark.

Wide credence was given to Cook's narration for some months and, after his return to New York, he soon made a large sum of money by his writings and lectures. Many, however, had doubted his honesty from the first; and faith in him was rudely shaken by an affidavit from a man who had accompanied Cook, several years earlier, on his second visit to Mount McKinley, to the effect that Cook's narrative of his ascent of that mountain was false, as no ascent was made. Then the two Eskimos who had accompanied Cook told the Peary party that the white man took them only a few miles north of Nansen Sound, and then turned south to Jones Sound, where they spent the winter. This was followed by the sworn statement of a person who said, he had prepared for Cook a set of observations for latitudes and longitudes on his journey to the Pole, to send with his other data to the University of Copenhagen, where his scientific results were to be examined. Cook was to pay him \$4000 for this work, but only about \$600 had been received. Meanwhile Cook disappeared from view, a little before the Copenhagen committee reported that the material he had sent to them contained no proof whatever that he had been to the North Pole.

Peary submitted to a special committee of the National Geographic Society, consisting of Mr. Henry Gannett, Rear Admiral C. M. Chester, retired, and Mr. O. H. Tittmann, Superintendent of the United States Coast and Geodetic Survey, his original journal, records of observations, instruments, etc. The committee reported that this material supplied proof that he had attained the North Pole on April 6, 1909. The gold medal of the Society was awarded to him. Captain Bernier, in the Canadian service, spent the winter of 1908-9 on Melville Island, in the Canadian arctic archipelago. He found an abundance of grass and flowers there from April to July, and also many musk ox, reindeer and other animals. The records left by Sir Edward Parry were discovered and brought back.

Denmark sent an expedition under the command of Captain Ejnar Mikkelsen to search for the body and records of the late Dr. Mylus Erichsen, who completed, in 1907, the mapping of the northeast coast of Greenland. The results will not be learned till the latter part of 1910.

Preparations were under way in 1909 for the organization of the British Antarctic Expedition under Mr. Shackleton, and it arrived safely at Cape Royds, Erebus Island, South Victoria Land, where it spent the winter of 1908. The party made four important land journeys. The first was the ascent of the Erebus volcano, whose



summit, 13,379 feet, was reached on March 10, 1908. The crater of this magnificent mountain is 900 feet deep and a half mile wide, and the steam ascending from it sometimes rises to a height of more than half a mile. During the winter, the presence of molten lava in the crater was shown by the deep red reflection on the steam cloud.

The second journey, one of the finest sledging exploits on record, by Shackleton, Adams, Marshall and Wild, started towards the South Pole on October 29, 1908. They traveled almost due south for 34 days on the Great Ice Barrier, passing Scott's furthest south and with the coast of the Antarctic Continent on their right as they advanced. In 83° 28' S. Lat., they found the coast in front of them. A mighty glacier, one of the largest known, here discharged its ice on the Barrier, and up this ice river, which was named the Beardmore Glacier, they forced their way. At 83° 40' S. they saw a brown bird and this was the last sign of life on the journey south. The glacier proved to be about 130 miles long, and its top was reached at an altitude of 10,477 feet above the sea. The explorers were now standing on the ice cap of East Antarctica, and the plateau was still rising gently before them. Some seams of coal, from 8 inches to 4 feet thick, were found. The wind sometimes blew at 80 to 90 miles an hour with temperatures of 60° below freezing, so that they had to lie in their bags till the storm subsided. Food was failing and rations were reduced, but the men pushed forward till January 9, 1909, when they were within 111 statute miles of the South Pole, and at an elevation of 11,600 feet above the sea. Southward stretched the same dead white snow plain and there is practically no doubt that the South Pole lies in this ice-covered land mass. They returned to winter quarters on March 1.

While this journey was in progress, another party made a long journey to the northwest over the interior ice cap and on January 16 reached the position of the South Magnetic Pole, which they fixed in 72° 25' S. Lat., 155° 16' E. Long. Still another sledge party traveled a considerable distance inland, up the Ferrar Glacier. On March 4 the expedition started for home on their steamer *Nimrod*.

The health of the party was remarkably good. The Manchurian ponies proved their great value as transport animals on the southern journey. Living microscopic animals were found in the fresh water lakes of the continent. It was proven that most of the Antarctic icebergs are largely or wholly snowbergs. The glaciers in some cases push out as far as thirty miles from the coast. The expedition practically solved the problem of the South Pole, and its leader has received the highest honors of many geographical societies and has been knighted by the British government. At the close of the year, the preparations of Captain R. F. Scott, leader of the earlier British expedition to this region, were far advanced for the renewal of work in the Antarctic with the special view of reaching the South Pole.

POLITICAL AND SOCIAL SCIENCE, AMERICAN ACADEMY OF. A learned society founded in 1889 for the purpose of promoting political and social science in a broad sense of the term. It had in 1909 a membership and subscription list of about 4500, of whom 250 were residents of foreign countries. The Acad-

emy edits a bi-monthly publication called *The Annals*, of which Professor Emory R. Johnson of the University of Pennsylvania is the editor-in-chief. During 1909 the following volumes of the *Annals* were issued: January, *Industrial Education*; March, *Labor and Wages*; May, *Conservation of Natural Resources*; July, *Race Improvement in the United States*. The following supplementary volumes were also issued: March, *Child Workers of the Nation*; July, *Consumers' Control of Production*; September, *Chinese and Japanese in America*; November, *American Business Conditions*. The annual meeting of the Academy is held in April, while several monthly meetings are held during the year. The twentieth annual meeting of the Academy was held in Philadelphia, April 16-17, 1909. The general topic discussed was "Race Improvement in the United States: The Development of Physical Welfare through Social Environment." A special exhibit was held illustrating the congestion in cities. This was prepared in coöperation with the Committee on Congestion of Population in New York and the City Club in Philadelphia. The general subject of the meeting was discussed under five special heads: The first of these was "The Relative Importance of Heredity and Environment in Race Improvement." This was discussed by Carl Kelsey, Ph. D., with a paper on "The Significance of the Problem"; by Dudley Allen Sargent, on "The Significance of a Sound Physique"; by Charles B. Davenport, on "The Influence of Heredity in Human Society," and by Alexander Johnson, on "Race Improvement by Control of Defectives." The second topic of the main subject was "Influence of City Environment on National Life and Vigor." The following papers were read: "Popular Recreation and Public Morality," by Luther H. Gulick, M. D.; "Are There Evidences of Race Degeneration in the United States?" by Woods Hutchinson, M. D.; "Relation of Federal Government to Race Improvement, with Special Reference to the Establishment of a Children's Bureau," by the Hon. Herbert Parsons; "Influence of City Environment on the Negro," by Booker T. Washington. The third subdivision was "The Clinical Study and Treatment of Normal and Abnormal Development," and this was illustrated by a "Psychological Clinic with Presentation of Cases," by Dr. Lightner Witmer, and a general discussion followed. The fourth subdivision was "Obstacles to Race Progress in the United States," and the following papers were contributed: "Use of Liquor as a Factor in the Race Problem in the South," by Ray Stannard Baker; "Alcoholism as a Cause of Insanity," by Charles L. Dana, M. D.; "The Moral Influence of Women in American Society," by Ethelbert Dudley Warfield, LL. D.; "Quacks and Quackery—The Drug Habit: Limitations of Legislation in Remedying Public Health Evils," by Champe S. Andrews; "The Fatal Invasion of Family Life by Industry," by Mrs. Florence Kelley; "The Instability of the Family," by J. P. Lichtenberger, Ph. D. The last subdivision was "The Relation of Immigration to Race Improvement," and the following papers were contributed: "Restriction of Immigration," by Hon. Oscar S. Straus; "Immigrants and Crime," by Hon. William S. Bennett; "The Relation of Immigration to the Condition of the Laboring Classes in the United States," by John Mitchell, and "The Relation of Immigration to Race Progress in the United

States," by William Z. Ripley, Ph. D. The officers in 1909 were: President, L. S. Rowe; Secretary, Carl Kelsey.

POLITICAL ECONOMY. The year 1909 was the twenty-fifth anniversary of the founding of the American Economic Association (q. v.). This fact led to an unusually elaborate programme at the annual meeting in New York the last week in December. Sessions were held in connection with the American Sociological Society (see SOCIOLOGY), the American Political Science Association, the American Association for Labor Legislation, the American Statistical Association, and the American Historical Association. President Taft, Governor Hughes, and Mayor McClellan spoke at one of the opening meetings; members were given unusual opportunities to observe the workings of numerous financial and commercial institutions, including the Stock Exchange; luncheons and receptions of considerable distinction were given; and an excursion to West Point closed the events of the official programme.

There follows a bibliography of many of the more important books issued during the year.

GENERAL WORKS. *Handwörterbuch der Staatswissenschaften*, edited by J. Conrad, L. Elster, W. Lexis, and Edg. Loenig, volume one, completely revised; Philippovich, *Grundriss der politischen Oekonomie*, II. Bd., *Volkswirtschaftspolitik*; Gide, *Cours d'économie politique*, new edition; Pareto, *Manuel d'économie politique*, translated from the Italian by Alfred Bonnet; Gide and Rist, *Histoire des doctrines économiques depuis les Physiocrates jusqu'à nos jours*; Hobson, *The Industrial System*; Wagner, *Theoretische Sozialökonomik oder allgemeine und theoretische Volkswirtschaftslehre*; *Documentary History of American Industrial Society*, edited by Professor John R. Commons and others, in ten volumes; Unwin, *The Guilds and Companies of London*.

MONEY AND BANKING. Victor Morawetz, *The Banking and Currency Problem in the United States* (see CENTRAL BANK); Andréadès, *History of the Bank of England, 1640-1903*; Kemmerer, *Money and Credit Instruments in their Relation to General Prices*; Davies, *The Money and the Stock Share Market*.

TRADE AND TRANSPORTATION. A. B. Hepburn, *Artificial Waterways and Commercial Development*; Cleveland and Powell, *Railroad Promotion and Capitalization in the United States*; Horrocks, *Railway Rates: The Method of Calculating Equitable Rates and Charges for Merchandise Carried on Railways*; Ketchum, *Freight Economics, How Traffic Experts Save Money*; McPherson, *Railroad Freight Rates in Relation to the Industry and Commerce of the United States*; Mathews, *Remaking the Mississippi: Preliminary Report of the Inland Waterways Commission*; Brooks, *Odd Prices and Bargains in Retail Trade*; Commissioner of Corporations, *Report on Transportation by Water in the United States*; Fagan, *Labor and the Railroads*.

LABOR. Beveridge, *Unemployment, a Problem of Industry*; Bryan, *The Development of the English Law of Conspiracy*; Chapin, *The Standard of Living among Workingmen's Families in New York City*; Shadwell, *Industrial Efficiency, a Comparative Study of Industrial Life in England, Germany and America*; *Working Classes, France*, being the report of an inquiry by the London Board of Trade on the cost of living

of the working classes; Lewis, *State Insurance: A Social and Industrial Need*; Schloss, *Insurance against Unemployment*.

TAXATION AND FINANCE. *British Tariff Commission Report*, including special reports on fourteen leading industries as the result of several years' work; Eheberg, *Finanzwissenschaft*; Hobson, *The Taxation of Unearned Income*; Jordan, *The Fate of Iodorum*; Noyes, *Forty Years of American Finances*; Robertson, *Trade and Tariffs*; Bureau of Corporations, *Taxation of Corporations; Part I. New England*; Plehn, *Introduction to Public Finance*, new and completely revised edition.

For classified lists of the periodical output of the year see *The Economic Bulletin* or *The Readers' Guide*.

POLO. The most notable event in the polo history of 1909 was the winning of the American Polo Cup from the Hurlingham Club of England by the Meadow Brook team of Long Island. This international trophy was carried to England in 1886. The American players who brought it back were J. M. Waterbury, Jr., Lawrence Waterbury, Harry Payne Whitney and Devereux Milburn. A series of three games was arranged, but the Americans won two straight, which made it unnecessary to play the third. The first match was won by a score of 9 to 5 and the second by 8 to 2. The senior club championship in the United States was won by the New Haven Country Club, which defeated the Bryn Mawr Polo Club by 7½ goals to 3. The Meadow Brook Club won the junior championship, defeating the Dedham Polo Club by 15 to 4½. In the cup contests Devon defeated Bryn Mawr 16½ to 8½ and 6½ to 4½, and Rumson, 12 to 7½; and was defeated by Bryn Mawr 8½ to 7½. New Neck 2d defeated Meadow Brook 2d by 7 to 5½; Rumson, by 7 to 4; Rumson Freebooters, by 8½ to 5; Bryn Mawr, by 13½ to 10; Point Judith, by 10½ to 7, and Dedham B., by 8 to 7.

POPE, ALBERT AUGUSTUS. An American manufacturer and capitalist, died August 10, 1909. He was born in Brookline, Mass., in 1843, and was educated in the public schools. At the outbreak of the Civil War he enlisted in the Thirty-fifth Massachusetts Infantry. He rose rapidly from the ranks and was brevetted lieutenant-colonel for gallant conduct. At the close of the war he engaged in the making of shoe manufacturers' supplies. In 1876, with the importation of the first bicycles, Colonel Pope saw a great opportunity. He founded the Pope Manufacturing Company, and made a large fortune as a maker of bicycles. When these wheels lost their popularity he began the manufacture of automobiles. Financial troubles in 1907 forced the Pope Motor Company into the hands of a receiver. To the efforts of Colonel Pope is largely due the general improvement of roads throughout the United States, since the advent of the bicycle.

PORTLAND, ORE. See ELECTORAL REFORM.

PORTO RICO. A territorial possession of the United States, ceded by Spain as a result of the Spanish-American War in the treaty of December 11, 1898. It is the easternmost of the four Great Antilles. The population, according to a census made in 1900, is 952,243, of whom 589,426 were white and 363,817 were colored. The proportion of whites is greater than in any other of the West Indies, except

Cuba, constituting 61.8 per cent. Provision was made in the Sixty-first Congress (see UNITED STATES, paragraph on *Congress*) for a census of the population to be taken in 1910.

AGRICULTURE. The fiscal year 1909 was a poor one in all branches of agriculture in the island, and as a result there was a falling off in quantity and value of the exports of almost every product. The outlook for 1910, however, is much brighter. The total value of the sugar exported in 1909 was \$18,432,446 and the quantity was 244,257 tons. The acreage under cultivation was 185,927. Although the exports of sugar were the largest in the history of the island and exceeded those of 1908 by 10,000 tons, and the acreage increased, the amount of money received from the crop was less than in 1908. The effects of the drought on the south side of the island were still evident in some districts, but the rain was so plentiful in the latter part of the year that the outlook for 1910 is much more encouraging, and indications point to a still greater output for the entire island than in the past year. Tobacco showed a slightly decreased acreage planted than in 1908. The total value of exports of tobacco in all forms for the fiscal year 1909 was \$5,634,130. Of this amount \$4,383,893 was for cigars, of which 142,088,000 were exported. This is an increase of nearly \$1,000,000 in value and about 5,000,000 in quantity over the export of 1908. Of leaf and stem tobacco there were exported 539,320 pounds, valued at \$1,250,237, which was a great decrease in quantity and a slight increase in value from the export of 1908. The total acreage planted in tobacco was 27,596. The greater proportion of the crop of 1909 was made up into cigars on the island and the number of cigars manufactured in the island in 1909 was the greatest on record, exceeding the output of 1908 by over 35,000,000, whereas only about one-half the amount of leaf tobacco was exported. This is greatly to the advantage of the island, as the manufacture of the leaf into cigars gives employment to thousands of people. In addition to the cigars exported, there were also manufactured for home consumption 933,265, making the total number of cigars manufactured on the island 227,021,365. In addition to the cigars there were manufactured 5,525,563 cigarettes, practically all of which were consumed on the island.

crease in 1909 as compared with 1908. The total value of the export of 1909 was \$485,896, as compared with \$675,255 in 1908. The exports of cocoanuts were slightly less than in 1908 and were valued at \$204,498. In the export of pineapples there was a great increase in 1909 over 1908, the respective figures being 442,780 and 172,779. A considerable quantity of canned pineapples was also exported. Although more orange groves in the island come into bearing each year than the year before, owing to agricultural conditions the value of the crop in 1909 was \$229,000 less than that of the crop of 1908. The acreage planted in pineapples is increasing enormously. Transportation facilities for fruit are still inadequate, but the steamship companies are endeavoring to assist the growers in every way possible. Great ignorance still exists on the part of many shippers as to the best manner of picking and packing their fruit.

The exports of other agricultural products in 1909 remained about stationary, except that cotton fell off from 223,053 to 199,562 pounds, with a corresponding decrease in the value. Sisal plants have been planted upon a tract of government land near Yauco and are being cared for under the supervision of the United States Experiment Station.

COMMERCE. The total trade of the island continued to increase during the fiscal year 1909 and approximated in that year \$57,000,000, while the balance of trade in favor of the island was \$3,846,899. The trade with the United States is steadily increasing, while that with foreign countries is decreasing. The exports to foreign countries in the fiscal year were \$1,000,000 less than in 1908 and the imports more than \$1,000,000 less than in 1908, whereas there was sold to the United States about \$500,000 worth of goods and the purchases in the island from the United States amounted to \$23,500,000. Porto Rico now ranks as the thirteenth customer of the United States among all the nations of the world, its purchases being only a small amount less than those of the entire United Chinese Empire. The table below shows the value of the imports from and the exports to the United States and foreign countries, together with the total imports and exports, and the total trade for the years 1907, 1908 and 1909.

	Imports from—		Exports to—		Total imports	Total exports	Total Trade
	United States	Foreign countries	United States	Foreign Countries			
1908.....	\$29,677,376	\$5,148,280	\$25,891,281	\$4,753,209	\$25,825,665	\$30,644,490	\$56,470,155
1909.....	23,618,545	2,925,781	26,394,312	3,996,913	26,544,326	30,591,225	56,935,551

The coffee crop in 1909 showed a decrease nearly 7,000,000 pounds and the acreage is rapidly decreasing year by year, as plantations are abandoned. The total amount exported in 1909 was 28,489,236 pounds, valued at \$3,715,000, as compared with 35,256,489 pounds, valued at \$4,304,609 in 1908. The total acreage planted in coffee in 1909 was 155,778, as compared with 169,873 in 1908. The indications for 1910 are promising, as the coffee trees have recovered well over the entire island. The export of citrus fruits showed a considerable de-

TRANSPORTATION. No new railroad lines were built during the fiscal year 1909, but the companies operating on the islands extended their lines about 22 kilometres. The Ponce-Guayama Road was under construction during the year and through traffic between Ponce and Guayama in conjunction with the road of the Compagnie de Sucreries was to be opened by January 1, 1910. A franchise was granted to the San Juan Light and Transit Company to double-track its line between San Juan and Martin Peña. The road between Naguabo and Fajardo will be com-

pleted during 1910. The dredging of the harbor of San Juan by the United States government progressed rapidly during the year. The inner harbor has been dredged to a depth of 30 feet, and the dredging plant is at work on the outer channel. Road and bridge construction by the insular government was virtually suspended at the end of the year, as practically all the proceeds of the road loan were expended and no appropriations were made at the session of the legislature for that purpose. See *History* below.

EDUCATION. The number of pupils actually enrolled in all the schools of the island, including special schools, in 1908-9, was 105,125. Of these the white pupils numbered 78,506, and the colored 26,619. Of the white pupils 45,298 were males, and 33,208 were females; of the colored, 15,060 were males, and 11,559 were females. The total number of teachers employed in the common schools at the end of the fiscal year was 1571. Of these 1383 were white and 188 were colored. Of the white teachers 694 were males and 689 females. Of the colored teachers 91 were males and 97 females. There were employed in the special schools at the end of the fiscal year 37 teachers, making a total of all the teachers employed in schools 1608. The monthly salary of teachers was as follows: Preparatory teachers, \$20; rural, \$35; graded, \$60; English graded teachers, \$65; principal teachers, teachers of English and special work teachers, \$75. The total expenditures for school purposes in 1908-9 were \$848,817 by the insular government, and \$437,485 by the local government, making a total expenditure for education for the fiscal year of \$1,286,302. During the year difficult problems arose, due in part to the failure of the legislative assembly to provide revenues for the support of the government during the fiscal year 1910. (See *History* below.) During the year a number of school playgrounds were established in the island. A school savings bank was established in 1908, and was successfully carried on during 1909. Total deposits to the credit of the pupils in the schools of \$6763 were made during the year. During the year an effort was made in the development of libraries already in operation in the schools and the establishment of additional libraries. There were at the opening of the year school libraries in ten towns. At the close of the year there were 57 rural libraries containing 2891 volumes in operation. There are altogether in the island one hundred libraries with a total of 37,715 volumes, to which the public has access, and of these 81 are in either graded or rural schools. Increased activity was shown during the year in the erection of school buildings.

FINANCE. The receipts of the insular government from all sources for the fiscal year 1909 was \$25,000 less than in 1908, although the receipts from local sources somewhat increased. There was, however, a decrease of over \$175,000 in customs which caused a reduction in total receipts. The expenditures exceeded the receipts by \$546,223, reducing the total surplus from \$1,527,884 to \$1,222,664. This excess of the expenditures was due to the deliberate intention of the legislature to reduce the amount of the surplus, which was considered too great, and it accordingly made large appropriations for permanent public improvements. The total insular revenue receipts amounted to \$3,548,960,

and the total insular revenue expenditures to \$4,095,184. The assessed valuation of the island, in 1909 as \$117,587,873, an increase of \$9,180,079 over that of the fiscal year 1908. The valuation is constantly increasing, and the tax for the fiscal year 1910 will be levied on the valuation of \$122,714,884.

HEALTH AND SANITATION. The general sanitary condition of the island continued to improve in 1909, as it has throughout the American administration. The construction of aqueducts for the supply of pure water has largely contributed to the general improvement. Deaths from transmissible diseases have decreased in total. The largest mortality is caused by tuberculosis, from which there were 2245 deaths in 1909, an increase of 335 over 1908. The death rate fell during the year to 20.90 per thousand, while the number of births had risen to 38,105, which leaves an excess of 16,056 over deaths and is the increase in the population of the island. The legislative assembly at its extraordinary session in 1908 passed a law providing for an organization called the Anemia Dispensary Service. This succeeded the commission which had heretofore carried on the work. During the last nine months of the fiscal year 1909, 59 dispensaries for the treatment of anæmia were in operation and 9159 patients were registered during the fiscal year 1908 and were under treatment during the fiscal year 1909, making a total of 63,884 treated by the dispensaries during the period mentioned above. Of this total number 18,549 were cured and 8087 were considered to be practically cured, only 54 having died. During the fiscal year 1910 the Anemia Dispensary Service will be a part of the Dispensary Service of Tropical and Transmissible Disease, created by a legislative act, approved March 16, 1909.

CHARITIES AND CORRECTIONS. The Bureau of Charities has under its control the boys' and girls' charity schools in Santurce, the Insular Asylum, the Blind Asylum at Ponce, and the Leper Colony on Cabras Island. Many improvements were made in the buildings occupied by these institutions during the year. The general condition of the jail buildings is not good but a new penitentiary is projected and when it is finished there will be a relief from the conditions as they now exist.

POLITICS AND GOVERNMENT. The general political condition during the fiscal year 1909 was unsatisfactory. The election campaign during the summer and fall of 1908, without any disagreeable incidents, but great stress was laid upon objections to the present system of government, and some of more hotheaded orators even advocated partitioning for independence. At the extra session of the legislature in September, 1908, there were no serious difficulties encountered in passing the principal bills providing for an irrigation project and the settlement of the cases (see below), but there appeared to be an underlying spirit of unrest. At the nominating convention held in the same month many more conservative members of the House of Delegates failed of renomination by the Unionist Party, which is the dominating party, in favor of the more radical element and opposers of the government, and several Extremists were nominated in their places. The result of the elections was a complete sweep of all the districts of the island for the Unionist

and for a second time the House of Delegates was composed of Unionists. At the assembling of the Legislative Assembly in January the House of Delegates and the central committee of the Unionist Party passed a resolution to the effect that in order to attract the attention of the United States to the opposition to the Organic Act, the House of Delegates should refuse to pass any legislation whatsoever. This resolution was defeated but obtained 9 votes of the 35 members present. A similar resolution was defeated in February, but this time it obtained 14 votes. The legislative session went on quietly until the last day. The sessions of the Assembly are fixed by the Organic Act at 60 days, and heretofore it has been the custom to leave most of the important legislation until the last and then sit in continuous session for three or four days until all the work is finished. On the last day of the session, however, the Governor received information that the House was to adjourn without having taken action on the important appropriation bills. The Governor did not oppose this but permitted the legislature to adjourn at midnight of the last day. He then called an extra session on the following morning and in a message authorized the consideration of the important bills. The extra session, however, refused to pass these bills and adjourned without having taken action. The policy which the House was prepared to adopt was to refuse to provide for the support of the government in order to force the attention of Congress to the situation and to send a delegation to attend the extra session of Congress in Washington in the hope of obtaining amendments to the Organic Act in conformity with their ideas. Such a commission was sent after the adjournment of the legislature. The President of the Council and the Attorney-General of the island also proceeded immediately to the United States for the purpose of presenting the government's side of the controversy. This commission was authorized to ask from Congress a provision similar to that in the Organic Acts of the Philippines and Hawaii, reenacting the budget of the previous year, when the legislature fails to pass a new one. A full discussion of the message of President Taft in relation to the conditions in Porto Rico will be found in the section *Congress*, in the article *UNITED STATES*. On June 9, the bill asked for was passed by Congress and on July 15 was signed by the President. The programme of the Unionist Party, which is in political control of the island, included a demand for radical changes in the choice of the Executive Council, whereby this body shall be elected by Porto Ricans instead of being appointed by the President. In addition, the House of Delegates passed and requested the Executive Council to approve several acts which were obnoxious to Governor Post and other members of the Executive Council. One of these bills, which provided that local magistrates should be appointed, was enacted for political purposes and intended to provide offices for more than 100 natives. Other acts to which the Governor was opposed were those creating an agricultural bank, those instituting a system of manual training, and those which allow the largest property holders to appoint the tax assessors in the various districts of the island.

The bill passed by Congress was favorably received by the more conservative element on

the island, but was bitterly resented by the Radicals. The interpretation given to the measure by the Attorney-General was attacked and an injunction was asked for by the Unionists. On September 18, Judge Rodey of the District Court rendered an opinion holding that the Attorney-General had properly interpreted the Act and refused to grant an injunction. Under this ruling the Governor was authorized to approve payments up to a total amount of \$3,173,295. See *UNITED STATES*, paragraph on *Congress*.

On September 7, Regis H. Post resigned his office for personal reasons and Colonel George R. Colton of Illinois, formerly Collector of Customs at Manila, was appointed to succeed him. He was inaugurated on November 6.

The matters in dispute between the United States government and the Catholic Church in regard to the ownership of certain lands on the island was settled by a compromise on August 12, 1908. The amount involved was approximately \$650,000, of which \$283,000 was in dispute with the United States and \$365,000 with the insular government. It was agreed that the United States should pay \$120,000 and the insular government \$180,000 to the Catholic Church and that the insular government should turn over to the church some 60 acres of grazing land at Santurce, and the Censos which had been awarded to them by the Supreme Court of Porto Rico. The terms of the settlement were submitted to the legislature and were unanimously approved.

OFFICERS: Governor, George R. Colton; Secretary of Porto Rico, George Cabot Ward; Attorney-General, Henry M. Hoyt, 2d; Treasurer, W. J. Gromer; Auditor, A. P. Sawyer; Commissioner of Education, E. G. Dexter; Commissioner of the Interior, L. H. Grahame; Resident-Commissioner of the Territory at Washington, Tulio Larrinaga.

JUDICIARY: Chief Justice, José C. Hernandez; Justices, Emilio del Toro, José Figueras, James H. McLeary and Adolph G. Wolf; United States District Judge, B. F. Rodey; United States District Attorney, José R. F. Savage.

PORTUGAL. A constitutional monarchy of the Iberian Peninsula. Including the Azores and the Madeira Islands, which are regarded as integral parts of the kingdom, the area is 35,582 square miles, and the population, according to the census of 1900, was 5,423,132. Capital, Lisbon. Non-continental area and population (1900): Azores, 922 square miles and 256,291 inhabitants; Madeira Islands, 314 square miles and 150,574 inhabitants. The foreign population in 1900 was 41,728. In that year Lisbon had 356,009 inhabitants; Oporto, 167,955; Braga, 24,202; Setubal, 22,074; Funchal (Madeira), 20,844; Coimbra, 18,144; Ponta Delgada (Azores), 17,620. The movement of the population (including the Azores and Madeira) for 1905 was as follows: Marriages, 37,600; births, 179,746; deaths, 112,756. The emigrants (mostly to Brazil and the United States) numbered (1907) 41,950.

EDUCATION. Primary education is free and nominally compulsory; but of the population over six years of age more than 70 per cent. are illiterate. There were in 1905 something over 6700 public and private elementary schools; 33 public (besides many private) secondary schools, with 5978 pupils; 23 normal

schools, with 1168 students. There are also many special schools (commercial, technical, industrial, medical, etc., etc.), but the attendance is small. The University of Coimbra had (1905) 572 law, 157 philosophy, 138 medical, 122 mathematics, and 53 theological students. The expenditure on public instruction for that year (1905) was 1,427,157 milreis, exclusive of 228,898 milreis to be expended through the Ministries of War and Marine. Roman Catholicism is the state religion, but all other forms of worship are tolerated.

INDUSTRIES. Of the total (continental) area, 26.2 per cent. is under cereals, pulse, pasture, etc.; 3.5 per cent. under vineyards; 3.9 per cent. under fruit trees; 17.3 per cent. under forest; 43.1 per cent. is waste land. The principal crops are corn, rye, wheat, olives, figs, fruits, and vegetables. The vine is cultivated on large and increasing areas. The population engaged in agriculture was given in 1900 as 3,367,199. In 1907 the number of persons actually engaged in mining was 4121. The mineral wealth of the country remains largely unavailable for lack of fuel and cheap transport. The value of the output of the various mines in milreis (1 milreis=\$1.08) at the mines in 1907 was 1,858,606.

The value of the fisheries in 1907 was 4,724,243 milreis (sardines, 2,073,799; tunnyfish, 368,929), besides 28,582 from the whale fisheries in the Azores and the cod fisheries. The persons engaged in this industry numbered 35,129, with 10,049 vessels of 29,157 tons.

COMMERCE. The imports in 1907 amounted to 61,453,100 milreis, against 60,391,301 in 1906; the chief articles being as follows: Raw materials, 27,097,700; food-stuffs, 12,682,600; textiles, 7,113,700; machinery, etc., 6,683,100; live animals, 2,391,600. Of the total imports, the value of 18,566,800 milreis came from Great Britain; 10,974,400 from Germany; 6,710,100 from France; 6,063,700 from the United States; 4,115,900 from Spain, and 1,987,800 from the Portuguese colonies. The exports amounted to 30,410,000 milreis, against 30,592,748 in 1906; the main articles being as follows: Wine, 10,099,115 milreis; cork, 4,378,991; preserved fish, 1,825,655; fruits and vegetables, 1,812,345; copper, 1,224,716; cottons and yarns, 1,171,831. Great Britain received exports valued at 7,367,900; Brazil, 5,624,200; Spain, 4,941,000. The exports of colonial produce through the Portuguese ports (not included in above totals) amounted to 10,555,300 milreis (cacao, 6,659,671 milreis; rubber, 3,101,517). Imports and exports of coin and bullion amounted in 1907 to 285,187 and 926,548 milreis, respectively, against 666,690 and 347,868 in 1906.

COMMUNICATIONS. The total length of railways in operation December 31, 1908, was 1742 miles, of which 662 belonged to the state. At the end of 1907 there were 5860 miles of telegraph line and 13,299 of wires; there were 516 telegraph offices; the messages transmitted during the year numbered 4,074,030. There were (1907) 1526 post-offices. The merchant marine (including the colonies) on January 1, 1908, numbered 101 steamers of 62,788 tons, and 525 sailing vessels of 53,367 tons. In 1907 11,445 vessels of 18,005,508 tons entered at the ports.

FINANCE. The unit of value is the milreis, worth \$1.08. The revenue and expenditure in 1906-7 were 59,943,000 and 62,899,000 milreis,

respectively. The estimated revenue and expenditure for 1909-10 were 69,262,336 and 74,605,880 milreis, respectively, against 70,530,135 and 72,702,738 in 1908-9. The sources of revenue for 1909-10 were estimated as follows: Indirect taxes, 29,147,404 milreis; direct taxes, 13,624,501; receipts *d'ordre*, 12,712,460; registration fees and stamps, 6,697,700; national property and sundries, 4,494,685; additional taxes, 960,450; extraordinary, 1,625,138. Avenues of expenditure: Public debt, 31,057,096; public works, commerce, and industry, 10,214,656; war, 7,969,236; interior, 5,595,662; marine and colonies, 5,100,438; finance, 4,590,234; civil list, Cortes, etc., 2,895,540; justice, etc., 1,414,982; deposit office, 787,621; foreign affairs, 437,261; loss on exchange, 200,000; extraordinary, 4,347,154. The outstanding debt, December 31, 1908, was as follows: Total external, 198,722,490 milreis; total internal, 541,656,122; floating debt, 81,644,918. No gold has been coined since 1891; no silver since 1904. The Bank of Portugal stood, December 31, 1908, as follows: Metallic stock, 9,901,500 milreis; note circulation, 70,162,029; deposits, 2,565,312; commercial account, 18,943,156; advances, 1,599,871; balance against Treasury, 26,690,311; capital, 13,500,000. The Monte Pio Geral and the Portuguese (State) Savings Bank had on the above date deposits amounting to 22,737,000 milreis; the banks of Lisbon and Oporto have monthly average deposits of 20,451,000.

ARMY. Service is obligatory, but exemption may be secured by purchase or by certain classes. The army is recruited from three grand conscription districts, a quota of about 17,000 men being forthcoming annually. There are 6 military territorial divisions, in which the army is distributed and the effective total on a peace footing in 1909 was fixed at 30,000 men. The infantry numbered 20,000, the cavalry 3000, the dragoons 1800, chasseurs 1200, field artillery 3400, horse artillery 500. The total number of guns was 448 and the rearmament with Schneider field and mountain guns was being completed during the year. On a war footing the Portuguese army would be raised to a strength of about 100,000, to which 53,000 militia would contribute, and the ultimate strength available was estimated at 260,000. There is maintained a colonial army of 10,000 men. From the conscription of 1909 there were furnished 18,000 men, of which 16,300 were sent to the active army, 500 to the municipal guard, 300 to the garde fiscale, and 850 to the naval forces. The military budget was fixed at 8,725,236 milreis for 1909-10, of which 7,969,236 milreis was for ordinary expenses and 756,000 for extraordinary.

NAVY. The effective navy in 1909 consisted of one armored coast-defense vessel, of 3200 tons; 5 protected small cruisers, aggregating 11,266 tons; 14 gunboats, 6876 tons; one torpedo-boat destroyer, 530 tons; 4 torpedo boats, 240 tons. There were also a schoolship, several transports, river gunboats, and obsolete gunboats. The personnel is 4204 officers and men.

GOVERNMENT. The executive authority is vested in a king, assisted by a responsible ministry of seven members. The King in 1909 was Manuel II., who was born November 15, 1889, and succeeded to the throne on the assassination of his father, Carlos I., and his elder brother, Louis Philip, February 1, 1908. The

legislative power rests with the Cortes, or Parliament, consisting of the Chamber of Peers and the elective Chamber of Deputies. A Parliament lasts three years, and its annual session, which begins on January 2, continues for three months, but may be prolonged by the King. The Ministry in 1909 (from May 15) was constituted as follows: Premier and Minister of the Interior, Wenceslão de Lima; Foreign Affairs, Carlos de Roma do Bocage; Justice and Worship, Wenceslão de Lima, *ad interim*; Finance, Fr. P. Azevedo; War, J. Elvas Cardeira; Marine and Colonies, M. Terra Vianna; Public Works, Commerce, and Industries, A. Barjona de Freitas.

HISTORY. Early in the year the Regenerador party held a meeting in which they adopted the principle of state socialism. The dissatisfaction with the course of the Monarchist party was manifested by various commercial and industrial associations, which started a campaign against the intriguing tendencies of Monarchist groups and their delay in making any serious attempt to solve important problems. On the opening of Parliament, which was deferred to March 1, the government announced that it would introduce the measures, which had long been demanded by the public, dealing with education and economic financial administrations and colonial relations. In the same month the pretender, Dom Miguel, officially renounced his claim to the throne. On March 16 the meeting of Parliament closed in some confusion, one of the members, Senhor Matta, having accused the Finance Minister, Senhor Espigueira, of robbing the treasury, and a duel with pistols followed. An important question before the government was raised by the complaints of certain British firms against the system of recruiting labor in São Thomé and Príncipe. (See below, PORTUGUESE AFRICA.) The opposition groups obstructed all parliamentary business, having united in demanding an investigation of the loan which had been negotiated by the government a month before. The opposition motion was lost, but their obstructive tactics were successful, and finding it impossible to carry through its measure, the Ministry of Senhor Campos Henriques resigned. A new Cabinet was formed under Senhor Telles, as Prime Minister, but lasted only four weeks (to May 4), and was succeeded by a non-party Ministry under Senhor Wenceslão de Lima. (See above paragraph on *Government*.) In the autumn the young King Manuel started on his tour of royal visits, going first to Spain, and thence to England, where his visit was made the occasion for the renewal for a period of five years of the Treaty of Arbitration between Great Britain and Portugal. At the close of November he visited France.

Toward the close of the year reports were published referring to colonial maladministration in Timor, Goa, and the Cape Verde Islands, and at the same time China complained of the Portuguese treatment of the Chinese in Macao. Reports of cruelty toward the natives in Portuguese Africa continued, and the international agitation on the subject of the alleged peonage, and even slavery, at São Thomé and Príncipe on the west coast was going on. In December, however, the Royal decree, which had been issued in July, was published in London. This suspended for three months the recruiting of

labor in Angola for San Thomé and Príncipe and implies that in the future it will be completely suppressed. See PORTUGUESE AFRICA.

PORTUGUESE AFRICA. The Portuguese possessions in Africa comprise Angola, Portuguese East Africa, Portuguese Guinea, the Cape Verde Islands, and the islands of São Thomé and Príncipe, all of which are treated under their respective titles. During the last few years there has been much discussion of the system of labor-recruiting in the Portuguese West African possessions, where virtual slavery was said to be practiced. In a book by Mr. H. W. Nevins, published in 1906, evidence to this effect was cited. Since its appearance witnesses have corroborated many of its statements. On December 4, 1908, a Caxton Hall meeting was held at London under the chairmanship of J. St. L. Strachey, and resolutions were passed protesting against the slave traffic in Portuguese West Africa. Leading English and German cocoa firms thereupon sent out a special commissioner to investigate labor conditions, and he reported that a system amounting to slavery actually existed. The novelist, John Galsworthy, gave instances to the same effect from his personal experience, in a letter to a newspaper in January. In the spring of 1909, Cadbury Brothers and other cocoa firms proposed a boycott, declaring that they would not buy the slave-produced cacao of the islands of São Thomé and Príncipe, as a result of their own investigations and a personal tour of inspection undertaken by Mr. William A. Cadbury in 1908. Other firms in England and abroad followed their example. The São Thomé cacao was therefore driven to America for an outlet, and in the autumn of 1909 the Anti-Slavery and Aborigines Protection Society decided to send to the United States a mission to induce cacao buyers in the northern and eastern centres of the country to refrain from purchasing the products of slave labor, and in general to arouse sympathy in the United States with their propaganda. Abuses in the recruiting system were admitted by some of the Portuguese authorities. It was thought that they could be removed by increasing the recruiting at Mozambique. A report on the charges alleged by Messrs. Cadbury and others was laid before the government in the spring, and it seemed likely that some action would be taken. It was held that the law as to recruiting labor worked well in Mozambique, Cape Verde and Cabinda, but not in Angola, on account of the backward state of the natives and their unwillingness to work. Moreover, the law was inadequately enforced in that colony, only a few officials having charge of an immense tract of country. Nearly ninety per cent. of the black labor was supplied by Angola, that is more than 40,000. At the close of August a riot occurred at São Thomé among the newly imported laborers from Mozambique, who declared that although they had signed for only one year, they were constrained to work for a period of two years.

PORTUGUESE EAST AFRICA, or MOZAMBIQUE. A colony of Portugal, on the east coast of Africa, between German East Africa and British South Africa. Area, about 293,860 square miles; population, about 3,120,000. The principal ports are: Lorenzo Marques, the capital, with 10,000 inhabitants (nearly one-half

Europeans); Mozambique, 5500; Beira, 4500 (about one-third Europeans); Inhambane, 3400; Chinde, 3000. The leading products are rubber, sugar, coconuts, beeswax, and mining products. Under cultivation, besides sugar-cane, are corn, wheat, oats, barley, alfalfa, pineapples, bananas, coffee, vegetables, sisal, and rubber. Cotton culture also has been tried with success. Extensive coal fields have been found in the Tete region, and important gold-bearing reefs on the Upper Zambezi. In 1906 imports were valued at 7,469,850 milreis; imports, 4,684,127 milreis; transit trade, 27,197,988 milreis; in 1907, 7,265,365, 4,582,218, and 21,615,013 respectively (1 milreis = \$1.08). The leading imports are cotton and iron goods and alcoholic beverages; exports, rubber, ores, wax, and ivory. A considerable part of the trade of British South Africa passes through Beira and Lorenzo Marques and thence by the Beira Railway or Delagoa Bay Railway. The latter has a length of 57 miles in the colony, and is continued 290 miles to Pretoria. An agreement was signed April 1, 1909, defining the commercial relations and the transit of goods by this railway between the Portuguese and British possessions. The Beira Railway extends 204 miles to the British border and thence to Bulawayo. In 1909 a line, which in part was open for traffic in 1908, was under construction from Lorenzo Marques to the Swaziland frontier. There are over 2200 miles of telegraph line. Part of the colony is administered directly by the state (the 5 districts of Lorenzo Marques, Inhambane, Tete, Quillimane, and Mozambique), part by the Nyasa Company, and part by the Mozambique Company. The estimated revenue and expenditure for the year 1908-9 were 5,223,592 milreis and 4,884,351 milreis. See TRANSVAAL.

PORTUGUESE GUINEA. A colony of Portugal on the west coast of Africa, between Senegal and French Guinea. It includes the adjacent archipelago of Bijagoz, with the island of Bolama, in which the capital (Bolama) is situated. Area, about 13,940 square miles; estimated population, 820,000. The chief port is Bissau. The principal products include rubber, wax, oil seeds, and hides. Imports and exports in 1906, 888,037 milreis and 576,535 milreis respectively. For the year 1908-9, estimated revenue, 275,750 milreis, and estimated expenditure, 295,406 milreis.

POST, GEORGE EDWARD. An American Presbyterian medical missionary, died September 30, 1909. He was born in New York City in 1838, and graduated from the New York Free Academy (now College of the City of New York). In 1860 he graduated from the medical department of the University of New York, and in 1861 from the Union Theological Seminary. Soon after his graduation he was elected to the professorship of surgery in the Syrian Protestant hospital at Beirut, Syria, which is maintained by the Presbyterian Board of Foreign Missions. This post he held until his death. He was also surgeon in the Johanniter Hospital in Beirut. Dr. Post received many decorations and orders from foreign countries for his missionary and surgical work. He was a voluminous writer and published books in many languages on botany, zoölogy, physiology, surgery, medicine, and the Bible. Among his works are: *The Flora of Syria, Palestine and Egypt*; *Text-Book of Botany*; *Text-Book of Mammalia*; *Text-Book*

of Birds; *Text-Book of Materia Medica*. He contributed also to Smith's, Hastings's, Jacobus's and Barnes's Bible dictionaries.

POSTAL SAVINGS BANKS. Very extensive opinion in favor of postal savings banks for the United States, the endorsement of the plan by all political parties, support by Presidents Roosevelt and Taft, and Postmaster-General Meyer, led to the expectation that the postal savings bank bill would be passed by Congress early in 1909. This bill provided that every money-order post-office should ultimately become eligible to receive savings deposits; that at first the Postmaster-General might designate only the first, second and third class offices to receive deposits; that accounts could be opened by deposit of one dollar and increased by ten cents, or multiples thereof; that 2 per cent. interest would be paid on all deposits up to \$500; that the funds thus accumulated should be redeposited by the government with national banks as near as practicable to the place of their receipt; that the national banks should pay to the government interest of two and one-fourth per cent.; and, as amended, that the maximum amount of a deposit be \$500, of which not more than \$100 could be deposited in any one month. In spite of hearings and apparent favor for the bill on the part of many Senators and Representatives, Congress, apparently with deliberation, failed to bring the bill to vote. The advocates of the measure charged that this failure was due to the pressure of the large private vested interests represented by existing savings and other banks.

Little new in the way of argument was developed, though some facts were strikingly put. The old arguments for postal savings banks on the ground of the educational value in the cultivation of thrift and good citizenship and as a prevention of bank panics were variously restated. It was added that since most existing savings banks are found in cities, and mainly in the larger ones, fully one-half the American people lack such facilities. George von L. Meyer, former Postmaster-General, stated that 98.4 per cent. of all savings bank deposits in this country are in 14 States, and only 1.6 per cent. in the other 32. He pointed out that while there was one savings depositor out of every two inhabitants in New England, there was only one out of 157 inhabitants in the rest of the country, New York also being excepted. It was pointed out that the main thing is to provide widespread and perfectly safe facilities for saving, and that even the minimum number of post-offices authorized by the proposed law to receive deposits would be four times as numerous as existing savings banks and well scattered throughout the country. Appeal was made to foreign experience as proving the advantages of postal savings banks. To the usual arguments that such banks are sorely needed by the immigrants was added the argument that since the immigrants are usually day laborers they cannot get to banks during banking hours, but would be able to get to the post-office before closing time.

The opposition was led by the American Bankers' Association, which at its annual meeting adopted adverse resolutions.

The postal savings bank system started in the Philippine Islands under laws of 1906 and 1907 embraced, on June 30, 1909, 251 banks with 8782 accounts and \$724,479 deposits. Of the

depositors, 3351 were Americans, 4771 Filipinos, 213 Europeans, and 181 Asiatics.

The following table from the report of the Comptroller of the Currency shows the statistics of postal savings banks throughout the world. The date of the returns is 1907 or 1908 in all but a few cases.

Country	No. of Depositors	Deposits	Av. Dep.
Austria	2,064,403	\$44,269,223	\$21.45
Belgium	2,106,237	134,040,979	63.64
Bulgaria	201,956	6,495,913	166.66
Finland	60,007	1,410,610	23.51
France	5,034,998	276,656,969	54.95
Hungary	648,652	18,044,000	27.82
Italy	5,108,802	285,442,694	55.87
Netherlands	1,401,670	59,499,168	42.45
Russia	1,788,990	128,873,169	72.04
Sweden	566,976	13,582,491	23.96
United Kingdom	11,018,251	781,794,533	70.95
Bahamas	2,151	144,778	67.31
Canada	155,895	45,190,484	289.88
British Guiana	12,421	396,843	\$1.95
Dutch Guiana	6,525	261,406	40.06
Curaçao	3,250	52,143	16.04
British India	1,262,763	49,252,632	39.00
Ceylon	71,018	686,887	9.67
Straits Settlements	3,716	339,880	91.46
Fed. Malay States	3,739	398,863	105.84
Dutch East Indies	56,464	2,845,861	50.40
Japan	8,013,193	46,275,301	5.77
Formosa	70,152	699,591	9.97
Cape of Good Hope	101,722	10,806,964	106.24
Gold Coast	1,279	73,820	57.72
Orange River Col.	6,433	768,204	119.57
Rhodesia .....	.....	163,582	.....
Terra Leone	5,409	386,429	71.44
Transvaal	53,000	6,538,843	123.86
Egypt	86,728	1,986,755	22.91
India	5,415	1,080,413	199.52
Western Australia	69,533	14,042,106	201.95
New Zealand	319,773	56,077,803	175.37
Philippine Islands	8,782	724,479	82.50
Total	40,320,303	\$1,989,299,815	\$49.33

Comparison shows that in 10 years the number of postal savings bank depositors in the above countries just doubled and that deposits increased 75 per cent. See SAVINGS BANKS.

POTASH SALTS. See FERTILIZERS.

POTATOES. The potato crop of 1909 suffered at different times and in different localities from wet weather and from drought. These conditions resulted in a somewhat uneven crop, but they did not prevent the production of a yield never before equaled in this country. In acreage, also, the year ranks first. In European countries the crop was generally good, but Germany, owing to leaf disease and wet weather, the yield was a little below normal, and in parts of the country the tubers were small. A reduction in yield, however, will not endanger Germany's position as the leading country of the world in potato production. Russia is second, Austria-Hungary third, and the United States usually fourth or fifth. In 1909 the country produced 376,537,000 bushels on an area of 3,525,000 acres, as compared with a yield of 278,985,000 bushels, and an acreage of 3,000 in 1908. The value of the crop, which amounts to \$206,545,000, is the greatest ever recorded, exceeding the 5-year average by about 10 per cent. The price per bushel has often been surpassed, but the larger yield, which is about 25 per cent. above the 5-year average, makes this year's crop a leader in value. The average yield per acre, 106.8 bushels, is high as has been exceeded only three times since 1857. Last year the average yield was only 85.7

bushels per acre. Among the different States, Maine generally stands first in average acre yield, leading this year with 225 bushels. In the northern Rocky Mountain States the average acre production also runs high. The acreage, production and total value of crop in the principal potato-growing States for 1909, as compiled by the Bureau of Statistics of the Department of Agriculture, are given in the following table:

States	Acreage	Production Bushels	Farm value Dec. 1, '09
New York	438,000	52,560,000	\$26,280,000
Michigan	348,000	36,540,000	12,789,000
Maine	130,000	29,250,000	13,748,000
Wisconsin	262,000	26,724,000	10,155,000
Pennsylvania	305,000	23,790,000	15,464,000
Minnesota	160,000	18,400,000	6,440,000
Ohio	182,000	16,926,000	9,479,000
Illinois	164,000	14,921,000	9,104,000
Iowa	145,000	12,905,000	7,098,000
Colorado	65,000	10,400,000	5,828,000
Indiana	95,000	9,025,000	4,693,000
Nebraska	105,000	8,190,000	4,914,000
California	60,000	7,800,000	6,006,000
Missouri	88,000	7,480,000	5,012,000
Oregon	46,000	7,360,000	4,416,000
New Jersey	80,000	7,200,000	5,904,000
Kansas	91,000	7,189,000	5,679,000
Washington	41,000	6,970,000	3,276,000
Virginia	60,000	5,520,000	3,864,000
Idaho	25,000	5,000,000	2,400,000

Owing to the prevalence of rainy and cloudy weather in the fall, the crop in Aroostook county and other localities of Maine was attacked by late blight and rot. The Maine Experiment Station, after studying these troubles, recommends careful and thorough spraying with standard Bordeaux mixture every 8 or 10 days after the tops are 6 to 8 inches high. When the crop has been attacked by late blight, the tubers are likely to rot in storage, and it is advised not to harvest such a crop too early, but to wait at least 10 days after the tops are killed by frost before digging the tubers.

POULTRY. See STOCK RAISING.

POWER, TRANSMISSION OF. See TRANSMISSION OF POWER.

PRAGMATISM. See PHILOSOPHY.

PRANG, LOUIS. An American art publisher, died June 15, 1909. He was born in Breslau, Germany, in 1824, and took part in the revolutionary movement of 1848, as a result of which he was obliged to leave the country. He came to the United States in 1850, settling in Boston. He became successively an engraver on wood, a lithographer and a publisher. He began the reproduction of famous paintings in colors, under the name of "chromos." His productions became widely known. He made a study for years of the problem of a standard of colors, and much of the perfection now attained in color printing is due to his experiments. He was the head of a firm which published textbooks on art and similar works, but he retired from active business in 1899.

PRATT INSTITUTE. An institution of practical and technical knowledge in Brooklyn, N. Y., founded in 1887. The number of students in 1909 was 3707, with 149 instructors. There were 94,615 books in the library. During the year there was received a gift of \$1,750,000 from the six sons and the daughter of the founder, Charles M. Pratt. This money was

added to the endowment fund. The total productive funds, with this addition, amount to about \$4,000,000. The president is C. M. Pratt.

PRESBYTERIAN CHURCH IN THE UNITED STATES, often called the Southern Presbyterian Church. A religious denomination organized as a separate body in 1861, as a result of the withdrawal of 47 presbyteries from the jurisdiction of the General Assembly of the Presbyterian Church in the United States of America, because of political action taken by the latter party, which action these presbyteries held it was incompetent for a spiritual court to take. The denomination in 1909 numbered 269,723 communicants, 3217 churches and 1625 ministers. It has 14 synods and 83 presbyteries. In 1908 the contributions to home missions amounted to \$276,318; to foreign missions, \$323,879; to education, \$250,903; to colored evangelization, \$20,321; to all causes, a total of \$3,507,075. The Assembly of 1908 organized a new synod, that of Oklahoma. At the meeting in 1909 there was celebrated the quadri-centennial of the birth of John Calvin. This meeting was held at Savannah, Georgia, on May 20. The stated clerk is Rev. W. A. Alexander.

PRESBYTERIAN CHURCH IN THE UNITED STATES OF AMERICA. A religious denomination which had its beginning as an organization in 1706 when the first presbytery was formed. Presbyterian congregations existed for many years previously, for example, the congregation at Hempstead, N. Y., being founded in 1644. The General Synod was established in 1716, and the first General Assembly met at Philadelphia in 1789. The denomination in 1909 included 36 synods and 291 presbyteries. The communicants numbered 1,321,386. There were 9023 ministers and 9997 churches. In the Sunday schools of the church were 1,206,015 members. The contributions of the denomination from all sources for the year ending March 31, 1909, amounted to \$21,664,756, as compared with a total of \$22,099,820 for the year ending March 31, 1908. Of this sum, \$1,541,665 was contributed for home missions, \$1,302,673 for foreign missions, \$137,832 for education, \$171,456 for Sunday school work, \$150,557 for church erection, \$139,019 for the relief fund, \$154,722 for freedmen, \$424,687 for the colleges of the denomination, \$133,504 for temperance, \$28,588 for the American Bible Society, \$146,175 for the purposes of the General Assembly, \$15,712,070 for congregational purposes and \$1,650,396 for miscellaneous purposes. Home missions are carried on in the whole of the United States, including Alaska and Porto Rico, and also in Cuba. Mission schools are maintained among the Indians, Alaskans, Mormons, mountaineers and the people of Porto Rico and Cuba. The school work is in charge of the Women's Board of Home Missions. On March 31, 1909, there were engaged in the work of home missions 1435 missionaries and 447 missionary teachers. There were added on profession of faith, 7135 communicants, and on certificate, 4645. There were 3214 adult baptisms and 2522 infant baptisms. The foreign missions of the denomination are carried on under the direction of the Board of Foreign Missions, and its work includes practically all countries in which missionaries are found. There were maintained in 1909, 28 missions, 146 stations, and 1781 outstations. Under the auspices of the Board were

946 missionaries, 3367 native helpers, 524 fully organized churches, 96,801 communicants, 1446 schools, 46,479 pupils, 101,756 pupils in the Sunday schools, 414 students for the ministry, 137 hospitals and dispensaries at which 449,457 patients were treated during the year. There were printed 167,834,946 pages of Christian truth in twenty-one languages. The Board of Education is the organ of the General Assembly for the general and efficient superintendence of the church's work in furnishing a pious, educated and efficient ministry in sufficient numbers to meet the calls of its congregations, and supply the wants of destitute classes in regions of the United States, and to preach the gospel throughout the world. During the year 1908-9 880 candidates were under the care of the Board. The Board of Church Erection guarantees to churches the erection and completion of houses of worship and manses. It maintains a loan fund at which loans are granted at low interest to be returned in annual installments. The fund amounts to \$245,000. The Board of Missions for Freedmen works among the colored population of the South. It was organized in 1865, and has 399 churches and mission stations, with 24,324 communicants and 23,323 Sunday school teachers. Other important boards of the denomination are the College Board, the Permanent Committee on Temperance, the Board of Publication, and the Board of Ministerial Relief. The denomination has many colleges under its auspices in all parts of the country. Its theological seminaries are the Auburn Theological Seminary, at Auburn, N. Y.; Western Theological Seminary at Pittsburg, Pa.; Lane Theological Seminary at Cincinnati, O.; the Theological Seminary of Kentucky at Danbury; the McCormick Seminary at Hanover, Ind.; San Francisco Theological Seminary at San Anselmo, Cal.; the Presbyterian Theological Seminary at Omaha, Neb.; and the Theological Seminary of the South at Lebanon, Tenn.

The 121st General Assembly of the denomination began at Denver, Col., on May 20, 1909. Among the important matters transacted at the meeting were the following: A Conference on Home Missions was authorized, composed of representatives of the agencies of different Presbyterian and Reformed churches; the Inter-church Federation was heartily approved; previous deliverances of the Assembly in regard to marriage and divorce were approved; among the decisions in church polity was one giving the presbytery full power to dissolve a church without the consent or request of its members, the property of dissolved churches to be taken charge of by trustees of the presbytery; closer relations with the Reformed churches of the United States were approved; the better observance of the Lord's Day to be secured in the District of Columbia was endorsed; a committee on social problems was appointed; complete Prohibition was approved, and pastors were urged to inculcate total abstinence principles. The Assembly established the Theological Seminary of the South, and appointed a board to maintain and conduct it. The use of tobacco by laymen and ministers was discouraged; a proposal for closer relations with the United Presbyterian Church was renewed and the vote of favorable action for union with the United Presbyterian Church was expressed. The officers of the General Assembly in 1909 were as follows: Moderator, Rev. James M. Barkley, D.

Vice-Moderator, Charles S. Holt, Esq.; Stated Clerk and Treasurer, Rev. William Henry Roberts, D. D.; Permanent Clerk, Rev. William Brown Noble, D. D.; Assistant Clerk, Rev. James M. Hubbert. The next General Assembly will meet at Atlantic City, New Jersey, on May 19, 1910.

The census of religious bodies of the United States, taken by the United States Census Bureau and published in 1909, showed an increase in the denomination from 787,743 communicants in 1890 to 1,179,566 in 1906, but in view of the fact that the union between the Presbyterian Church was not fully consummated at the close of 1906, these statistics do not give a correct idea of the membership at that date.

PRESBYTERIANS, REFORMED. See REFORMED PRESBYTERIANS.

PRICE, THOMAS. An Australian public official, died May 31, 1909. He was born in North Wales in 1852. His early years were spent as a stone cutter in Liverpool, where he also took an active interest in local politics. In 1883, on account of ill-health, he was obliged to go to Australia. He worked at his trade of stone-cutting in Adelaide until 1891, when he became secretary of the Masons' and Bricklayers' Society. Two years later he entered the House of Assembly. In 1902 he was chosen secretary of the Labor party, and in 1903 its Parliamentary leader. He was made Prime Minister of South Australia in 1905, combining with that office the duties of Commissioner of Public Works and Minister of Education.

PRICES. The average prices of commodities continued upward during the year, the advance being especially rapid during the last six months. The total rise in the index was about 10 per cent. for the year in the United States, and about 8 per cent. in London, this latter reflecting the general rise throughout the world. *Radstreet's* price index stood at \$8.2756 on January 1; it rose slightly during January and then declined during February, but thereafter advanced steadily. On July 1 it was \$8.4457 and on December 1, \$9.1262. These indexes may be compared with \$7.7227 on June 1, 1908, the post-panic minimum, \$8.2949 on January 1, 1908; \$9.1293 on March 1, 1907, the pre-panic maximum; and \$6.802 on January 1, 1899, the minimum for many years. Prices at the close of the year averaged about the same as the highest level before the panic of 1907; were 20 per cent. higher than the lowest average since the panic; were about 35 per cent. above the level of 1899; and were about 22.5 per cent. above the general average for the preceding fifteen years. Articles entering generally into standards of living in this country and showing extraordinary high price levels in 1909 included wheat and flour, corn, butter, eggs, lard, pork and all pork products, wool and cotton. Many other less important commodities showed higher prices than have been usual, and maintained a high average level. The index of prices given by the *London Economist* stood at 2.197 on January 1, 1909, and at 2.390 on December 31. London prices had downward during the first half of the year, the index standing at 2.176 at the end of June, but thereafter the rise was steady and rapid. The year's minimum in June may be compared to that of 2.168 at the end of August,

1908; and the year's maximum to that of 2.309 at the end of January, 1908. The highest level in thirty years was reached at 2.601 on June 1, 1907, and the lowest since 1860 was 1.885 in 1897.

The cause of the great rise in prices during the past decade received a great deal of discussion during the year. The consensus of opinion was that the chief cause of the rise was the great increase in the production of gold during this same period. Thus the average production during the past five years has exceeded \$420,000,000 per year, and during the seven years 1898-1904 inclusive, the annual average was about \$300,000,000. These figures must be compared with an average of about \$108,000,000 for the decade 1880-1890, and an average of about \$180,000,000 for the seven years 1891-1897 inclusive. Prices being but ratios of the exchange value between gold and commodities, this great flood of gold has so outrun the increased supply of other economic goods that prices have necessarily risen. Other general causes of advance in prices presented by Professor F. W. Taussig, were (a) the rising standards of living, leading to more abundant and more fastidious demand, and (b) the necessary rise in the cost of food products as a result of the concurrent increase in population and exhaustion of virgin farm land. Among special causes, affecting particular commodities to greater or less degree, are the tariffs of the world, particularly the American, and the monopoly power of trusts sheltered by the tariff wall. Among special causes should be included also the monopoly power of certain trade unions, increased cost of production due to rising wages and shorter hours, and extravagance in living. Connected with the latter by way of a growing demand for convenient and personal service, is the increased multiplicity of retail dealers and the greater expense of handling the retail trade. This is of especial importance in the cities where customers demand stores of all kinds near at hand, require the delivery of goods at all hours of the day, and prefer to have the grocer and the butcher call for the day's orders. All of these services are expensive, and the effort of each dealer to furnish them results in an inadequate utilization of clerks, deliverymen, and horses and wagons, thereby further increasing the necessary additions to prices.

An inquiry made by the United States Department of Agriculture into the supply and prices of beef showed that the annual supply was about 182 pounds per capita, but steadily decreasing. The results indicated that prices have not risen more rapidly than the prices of steers. Corn also has increased in price. The methods of retailing add greatly to prices in the cities. The average difference between wholesale and retail prices in the North Atlantic States was found to be 31.4 per cent.; in the South Atlantic, 38 per cent.; in the North Central, 38 per cent.; in the South Central, 54 per cent.; and in the Western, 39 per cent. This difference varied from 17 per cent. in Baltimore and 20 per cent. in New York City, to 58 per cent. in Spokane, Wash., and 68 per cent. in Shreveport, La.

PRINCE EDWARD ISLAND. An insular province of Canada. Area, 2184 square miles. Population (1901), 103,259. Capital, Charlottetown, with 12,080 inhabitants in 1901. The executive authority rests with a lieutenant-

governor appointed by the Governor-General of Canada and acting through a responsible Executive Council. The Legislative Assembly consists of one house of 30 elected members. The Lieutenant-Governor in 1909 was Donald A. McKinnon; the Premier and Attorney-General, Francis L. Hazard. For statistics and other details, see CANADA.

PRINCETON UNIVERSITY. An institution of higher learning at Princeton, N. J., founded in 1746. In the academic year 1909-10 there was an attendance of 1400 students, divided as follows: Graduate students 134, students in the school of electrical engineering 13, seniors 237, juniors 237, sophomores 343, freshmen 347, students qualifying for regular standing 84, specials 5. The faculty and instructors numbered 169. At the close of the academic year 1908-9 Mr. De Witt Clinton Blair resigned his membership in the Board of Trustees, and on July 31, 1909, the Board lost by death Mr. Cornelius C. Cuyler. New members of the Board elected in 1909 are Wilson Farrand, Alumni Trustee, and the Hon. John L. Cadwalader, Life Trustee. One member of the faculty, William Alfred Packard, Ph. D., Professor of Latin, died on December 2, 1909. The faculty has also lost by resignation Professor James Hopwood Jeans, Professor of Applied Mathematics, and Mr. Junius Spencer Morgan, Associate Librarian. Guyot Hall, the new biological and geological laboratory, was opened for instruction on October 11, 1909, and the equipment for biological study is being made still more complete by the addition of an unusually well-equipped vivarium. During the year Campbell Hall, the new dormitory given by the Class of 1877, was completed and is now in use. The construction of the dormitory given by Mrs. Russell Sage is nearing completion and will accommodate 150 men. Additional dormitory entries connected with the Sage building

tion for the higher degrees. He also reviews in considerable detail the working of the Preceptorial System, which has been in operation for five years, and may be said to have passed the experimental stage. It has met with marked success, especially in the more advanced courses. The receipts for the year were \$662,010.69, of which \$199,294.04 were from gifts. In addition there was received for endowment \$1,508,283.24. The total productive funds of the University amount to \$4,749,481.86. The president is Woodrow Wilson.

PRIVATE BANKS. Statistics compiled for the National Monetary Commission for the date of April 28, 1909, showed that there were at that time 1497 private banks in the United States. Of these 1145 were in the Middle Western States, while none was found in the New England or Pacific States. Illinois alone had 430 private banks, Indiana 194, Iowa 179, Ohio 174, and Michigan 120. The aggregate resources of such banks were \$246,256,000, or only 1.2 per cent. of the aggregate banking resources of the country. The resources included total loans and discounts of \$161,302,000; due from other banks, \$40,833,000; and cash on hand, \$11,053,000. Liabilities included individual deposits, \$193,263,000, and capital, surplus and undivided profits, \$43,517,000. Compared with the aggregates for all banks, private banks had 1.6 per cent. of the total loans and discounts; 8 per cent. of all cash, and 1.3 per cent. of all individual deposits. See BANKS AND BANKING.

PROFESSIONAL SCHOOLS. The accompanying table gives statistics of the professional schools of the United States for the years 1908-9. The schools included are those of theology, law, medicine, dentistry, pharmacy and veterinary medicine. The figures are from the report of the United States Commissioner of Education.

GENERAL SUMMARY OF STATISTICS OF PROFESSIONAL SCHOOLS FOR 1908-09.

Class	Schools	Students	Increase * or de- crease	Students having literary degree*	Value of grounds and buildings*	Endowment fund†	Income†
Theological	162	10,218	*635	3,335	\$19,766,100	\$32,024,000	\$3,119,300
Law	109	18,553	*484	4,023	3,169,500	808,100	1,191,300
Medical	144	22,153	†629	1,605	12,583,981	3,468,734	1,843,515
Dental	55	6,178	†341	101	1,333,031	.....	440,253
Pharmaceutical	78	5,999	*432	78	914,500	252,278	236,920
Veterinary	19	2,677	*438	60	907,000	.....	187,774

* So far as reported.

have been provided for by gifts of alumni, and are in process of construction. The Graduate School shows a marked growth in the number of students, due to the new impulse and distinction given to graduate studies by the recent notable additions to the faculty, the reorganization of graduate studies, and the splendid facilities which have recently been supplied for teaching and investigation in the fields of physics, biology, and geology, by the erection and equipment of the Palmer Physical Laboratory and Guyot Hall. President Wilson, in his annual report, calls attention to changes in the scope and method of study in the Graduate School, which, it is believed, will produce increased thoroughness and comprehensiveness of prepara-

PROHIBITION. The movement for the prohibition and restriction of the liquor traffic, which has been so notable in the United States, especially in the Southern and Central Western portions, continued in 1909, and many radical laws were passed affecting liquor selling and manufacture. The liquor forces, too, were aggressive, and in several States strong efforts were made to repeal anti-saloon legislation. This was especially true of Indiana and Ohio. On January 1, Prohibition laws went into effect in Alabama, Mississippi and North Carolina. In the first named State, however, the Prohibition forces met with the most decisive defeat since the great movement for the extension of non-liquor-selling territory began in the South.

This was the defeat by a vote of the people of the measure placing Prohibition in the constitution of the State. A full discussion of this struggle and its results will be found in the article ALABAMA. In Tennessee the 4-mile limit was extended to all towns and cities of the State. This is practically equivalent to State-wide Prohibition. The legislature adopted also another measure prohibiting the manufacture of liquor within the State boundaries. In South Carolina Prohibition with a referendum by counties was adopted, and as a result of the referendum vote, 36 of the 42 counties prohibit the sale, while six others retain the county dispensaries. Strong effort was made in Arkansas to pass Prohibition bills through the legislature, but the two houses could not agree upon any particular measure. The lower house of the Missouri Legislature passed a resolution calling for a vote upon the Prohibition amendment, but no decisive action was taken. In Maine and New Hampshire new restrictive law enforcement measures were enacted. Washington passed a municipal and rural county unit option law, and in the election which followed, over forty places in the State voted "dry." In Idaho a straight county option measure was enacted, and in the first elections held, 14 of the 23 counties abolished saloons. In Delaware, the liquor question was resubmitted to the only "wet" county of the State. Arizona enacted a county option law. In Wyoming all saloons outside of incorporated towns were abolished. The Kansas Legislature passed a stringent measure prohibiting the sale of liquors for all purposes except for sacramental use. All open saloons in Nebraska were limited to the hours between 7 A. M. and 8 P. M. The city of Lincoln and two counties in the same State voted "dry." In Utah a county option law was passed, but was vetoed by the Governor after the legislature adjourned. More than half the counties in the State, however, abolished saloons by local decree. In Colorado a number of towns were added to the no-license column, making 11 counties in the State "dry." Four additional counties were carried for no-license in Illinois. In the full elections 28 of the 36 places voting voted against the sale of liquor. In Michigan 9 counties abolished the saloon, while in Texas 2 counties voted no license. Three new counties in Kentucky voted for no-license, and two in Pennsylvania were made "dry." In West Virginia, the lower house of the legislature passed a Prohibition bill, but this did not become a law. Eight additional counties in the State vetoed "dry," in elections held during the year.

In New York the result of the elections during the year was a net gain for the anti-saloon forces of 88 towns. The most sweeping victories for the no-license party were gained in Indiana, where 60 counties voted "dry." The legislature of Connecticut passed a number of anti-saloon measures, and in California six additional counties adopted no-license. The legislature of North Dakota passed six temperance measures.

Pennsylvania the local option bill was brought to a vote in the House, but was defeated. The Florida Legislature passed a bill committing the Prohibition amendment to a vote of the people. A discussion of these various measures adopted by State Legislatures and the results of the elections as affecting the regula-

tion of the saloon will be found in the articles on the separate States.

At the close of 1909, 16 States had local option with the county as a unit, 12 States had local option with a town or township as a unit, 20 States had local option with a municipality as a unit, and 2 States had local option with a residence district of cities as a unit. The only States which remained license States on December 31, 1909, were Nevada, New Jersey, New Mexico, Pennsylvania, Utah and Wyoming, and in all of these the issuing of licenses is guarded by certain restrictions. The States voting entire Prohibition on December 31, 1909, were as follows: Alabama, statutory; Georgia, statutory; Kansas, constitutional; Maine, constitutional; Mississippi, statutory; North Carolina, statutory; North Dakota, constitutional; Oklahoma, constitutional; Tennessee, constitutional. Under the remaining States local option laws in some form prevailed. The passage by Congress of the Knox C. O. D. liquor shipment law, which goes into effect July 1, 1910, will be very effective in aiding the enforcement of the State liquor laws. This measure, which was passed in the closing days of the 60th Congress as an amendment to the penal code, prohibits the C. O. D. shipment of liquor or delivering of liquors to fictitious consignees, and compels the marking of all shipments so as to show the kind and the contents. A bill was introduced in both houses of the 61st Congress calling for an amendment to the interstate commerce law for the purpose of protecting dry territory from the interstate shipment of intoxicating liquors. The Commission of Inquiry bill introduced in the 60th Congress, and advocated by certain temperance organizations, was opposed by the Anti-Saloon League on the ground that the League believes the day of government investigation of the liquor traffic is past. Certain measures were introduced also regulating the selling of liquor in the District of Columbia, and measures were supported by the Anti-Saloon League granting Federal tax receipts to liquor dealers in "dry" territory, the erection, equipment and maintenance of recreation buildings at army posts, measures to enforce more thoroughly the anti-canteen policy of the government in the army and soldiers' homes, measures making appropriations for the enforcement of the law against the liquor traffic among the Indians, and measures for full protection of the temperance interests in the enabling act of the Territories which are to be admitted to statehood.

The statistics of liquor production and consumption in the United States in 1909 will be found in the article LIQUORS, FERMENTED AND DISTILLED.

In foreign countries the most notable temperance agitation took place in Sweden, and it will be found discussed in the *History* of that country.

The International Anti-Alcohol Congress met in London in 1909. Delegates were present from nearly every country in the world. More than fifty temperance organizations are represented in the General Committee. The next Congress will be held in 1910 at The Hague. In 1908 a committee was appointed to inquire into the operation of the law relating to inebriates and to their detention in reformatories and retreats. In its report in January, 1909, the committee stated that none of the methods of drug treat-

ment into which they inquired found every case which applied for treatment curable, and that by no method can curable cases be distinguished before trial of the remedy. The committee reported that there had been a decided failure to apply the Inebriates act of 1898 as widely as intended by Parliament.

It was estimated by an authority upon the subject that there was in 1908 a diminution of the expenditure on intoxicating liquors in England to the amount of nearly \$30,000,000, and taking the increase in population into account, the decreased expenditure was equal to about \$37,000,000. The total number of licensed premises in England and Wales on January 1, 1909, according to the latest available statistics, was 118,752, as compared with 120,441 on January 1, 1908, and 124,883 on January 1, 1905, when the Licensing act of 1904 went into operation. There was no attempt in 1909 to pass a licensing bill similar to that which was defeated in the House of Lords in 1908. The bill dealt very severely with the liquor interests, and it was assumed by party leaders that popular opinion was not ready for a measure which threatened so great an economic disturbance.

For the latest researches in regard to the effect of alcohol on the human body, see **ALCOHOL**.

PROTEINS. See **CHEMISTRY**.

PROTESTANT EPISCOPAL CHURCH.

A religious denomination which traces its descent as a member of the Anglican Communion through churches established in the American colonies and the Church of England. The church in 1909 comprised in the United States 65 dioceses and 21 missionary districts, including those in Alaska and the insular possessions. There are also 11 foreign missionary districts. There were in 1909 103 bishops of the Protestant Episcopal Church, including 28 missionary bishops. Five bishops were consecrated during the year: Alfred Harding, Bishop of Washington; Nathaniel Seymour Thomas, Bishop of Wyoming; Benjamin Brewster, Missionary Bishop of Western Colorado; John Gardner Murray, Coadjutor Bishop of Maryland, and Arthur Seldon Lloyd, Coadjutor Bishop of Virginia. The church lost during the year two bishops, George de Normandie Gillespie, First Bishop of Western Michigan, who died March 19, and William Hobart Hare, Missionary Bishop of South Dakota. The former was succeeded in the episcopate by the Coadjutor Bishop, the Right Reverend John M. McCormick, D. D. The church suffered a serious loss by the death of Dr. William Reed Huntington, D. D., rector of Grace Church, New York, since 1883, who died July 26.

Statistics of the Church are gathered yearly by the *Living Church Annual* and *Whittaker's Churchman's Almanac*. According to this publication the communicants in 1909 numbered 912,103, as compared with 900,606 in 1908. The clergy numbered 5272, an increase of 90 over the preceding year. The lay readers numbered 2643, and the postulants 384. There were 7594 parishes and missions, and in the Sunday schools of the church were 441,773 scholars and 49,591 teachers. The contributions from all sources amounted to \$18,025,690, an increase of \$308,351 over the contributions in the preceding year. The foreign missions of the church are carried on in West Africa,

China, Japan, Mexico, Cuba, Brazil, Panama Canal Zone, and Haiti. The church also has jurisdiction over certain American churches in Europe and charges a bishop with this oversight. Domestic missions are carried on throughout the United States, and its possessions. The fiscal year of the domestic and foreign missionary society showed the best record for general missions that has yet been made. By September 15 the excess in offerings over the year previous had reached \$110,700. The total contributions of parishes and individuals for the year aggregated \$550,322. Large bequests were received from the estates of George C. Thomas and Miss Mary Rhinelandt King. The church was represented at a conference with the various Anglican missions in China in March. The organization was effected to embrace all the missions in China, somewhat after the Japanese precedent, with a name signifying the Holy Catholic Church in China. The Chinese delegates sent a message of thanks to the mother churches in England and America "for the planting, care and protection given to the church in China during the past sixty years or more." The opening of the Catechetical School in Hankow was an important feature of the year in the church in China.

A session of the House of Bishops was held in New York for the purpose of electing missionary bishops for Wyoming and Western Colorado. There were chosen for the former diocese, Rev. Nathaniel Seymour Thomas, rector of the Church of the Holy Apostles in Philadelphia, and for the latter, the Very Rev. Benjamin Brewster, Dean of St. Mark's Cathedral, Salt Lake City. Two memorials were presented to the House of Bishops at this session. One of these, signed by 1165 clergy, asked that the House of Bishops guard the ministry of the church against abuses that were being perpetrated under color of observance of canon 19, and that further action might be taken at the next general convention with respect to that canon. The House of Bishops replied that it was not legally competent to take any action upon the memorial until the meeting of the next General Convention. This canon formerly provided that no person might officiate in any congregation "without sufficient evidence of his being duly licensed or ordained to minister in this church." It was amended by the General Convention at Richmond in 1907 to provide that the bishop of any diocese or district might "give permission to Christian men who are not ministers to this church to make addresses on special occasions." This amendment resulted in a great deal of discussion and not a little opposition, especially among the clergy.

The diocese of Pennsylvania celebrated its 125th anniversary at the opening of its convention in May, in Christ Church, Philadelphia. In June the 50th anniversary of the ordination of Bishop Grafton of Fond du Lac to the priesthood and the 20th of his consecration to the episcopate were celebrated. At the diocesan council of the diocese of South Carolina, held in May, there were organized a separate council for colored churchmen at the request of the clergy of that race. Colored workers in the diocese will hereafter exercise self-government under the bishop. A committee was appointed at the same council to consider the question of the division of the diocese.

Considerable progress was made during the year in the direction of Christian unity. An American branch of the Anglican and Eastern Orthodox Churches' Union was effected in May. This society was formed in England and has the object of bringing the Anglican and the Eastern churches into closer touch. A branch of the society, the St. Willibroed, which was also organized in England, with the purpose of promoting more intimate relations between old Catholics and Anglicans, was also formed in the United States during the year, with the Rev. Dr. William Harman van Allen as American secretary.

In 1908 there was formed an association called the American Church Union. It was formed to defend and maintain unimpaired the doctrine, discipline and worship of the church against laxity and indifference within and hindrance and aggression from without. It gives unreserved sanction to the following principles: First, that the Protestant Episcopal Church is an integral part of the historic Catholic Church; second, that the church's creeds are to be interpreted and believed in their traditional sense; third, that the ministry of the church has been from the Apostles' time three-fold; and those only are to execute the functions of the ministry in this church who have episcopal consecration or ordination; fourth, that the Scriptures of the Old and New Testaments are the word of God; fifth, that the church's sacraments possess vital power to confer grace; sixth, that the marriage tie is indissoluble as set forth in the church's form of the solemnization of matrimony. The founders of the Union in their declaration of principles asserted that the gravity of the present situation in the church is that the boldest attacks on the faith and order of the church are made by those within her own household. Of these attacks the following are asserted to require immediate attention: First, the denial of the inspiration of Holy Writ; second, the admission to holy communion of persons who have not been confirmed by bishops of the church, and who have not confessed their desire to be so confirmed; and third, the permission to persons not communicants of the Anglican body to teach and preach in the congregations. The Union pledges itself to resist these and all other contraventions of the faith of the churches enshrined in the Book of Common Prayer.

The results of the religious census taken by the United States Census Bureau, based on figures of 1906 and issued in 1909, contain much interesting matter in regard to the Protestant Episcopal Church and its growth from the period 1890 to 1906. The increase during that period was 354,894 communicants, or 6.7 per cent. The church edifices increased in the same period 37.9 per cent., while the value of church property shows an increase of 54 per cent. The number of ministers increased in the sixteen years 29.5 per cent. The number of Protestant Episcopal churches or colored people increased from 49 in 1890 to 98 in 1906, while the communicants increased from 2977 in 1890 to 19,098 in 1906.

The Church Congress of 1909 was held in Boston during the week beginning May 11. The opening sermon was preached by the Bishop Coadjutor of New Hampshire. The following were the subjects discussed at the Congress:

"Socialism in Relation to Christianity"; "The Alleged Incompatibility of Genius and Orthodoxy"; "The Ethical Aspects of Gambling"; "The Possible Contribution of Oriental Thought to Present-day Christianity"; "Psychotherapy as an Aid in Pastoral Work"; "The Outlook for Visible Church Unity"; and "The Office and Work of the Holy Spirit." The Episcopal Convention of the diocese of New York held its session in November. The chief matter of general interest discussed was the creation of suffragan bishops. It was resolved to memorialize the General Convention to adopt at its next meeting the constitutional amendment provisionally adopted in 1907, permitting the creation of suffragans on the ground that this form of episcopal assistance was best adapted to the needs of large cosmopolitan urban communities.

PROUT, EBENEZER. An English composer and educator. He was born in Oundle, England, in 1835, and graduated from London University. From 1876 to 1882 he was professor of harmony and composition at the National Training School, and later he held similar positions at the Royal College of Music at the Guildhall School. In 1894 he became professor of music in the University of Dublin, which office he held until the time of his death. He was an industrious composer and wrote four symphonies and many orchestral works. He wrote *Harmony: Its Theory and Practice* (1889); *Counterpoint Strict and Free* (1890); *Double Counterpoint and Canon* (1891); and a succession of books upon fugue and a volume entitled *The Orchestra*. He succeeded Sir Arthur Sullivan as a member of the Royal Academy of Music. He was the first editor of the *Monthly Musical Record*, from 1871 to 1874, and was a frequent contributor to that periodical after his editorial connections had ceased. He served also as a musical critic of the *Academy* and the *Athenæum*. He contributed also to musical papers and wrote over fifty articles for Grove's *Dictionary of Music and Musicians*.

PSYCHICAL RESEARCH. In both the English and American Societies interest has been sustained in trance communications, especially as these bear on the question of the survival of bodily death. In the *Proceedings of the (British) Society for Psychical Research* (vol. xxiii., p. 2) Professor James reports sittings with Mrs. Piper, the trance-medium, under the "Hodgson control." Richard Hodgson was for many years devoted to the interpretation of Mrs. Piper's communications. Before his death in 1905 he indicated his purpose—in the event of his own demise—to establish relations with living friends. The reports which purported to come subsequently from him seemed, therefore, to be of especial value. But James has found them peculiarly difficult of interpretation. In drawing conclusions from them, he says: "I myself feel as if an external will to communicate were probably there, that is, I find myself doubting, in consequence of my whole acquaintance with that sphere of phenomena, that Mrs. Piper's dream-life, even equipped with 'telepathic' powers, accounts for all the results found. But if asked whether the will to communicate be Hodgson's, or be some mere spirit-counterfeit of Hodgson, I remain uncertain and await more facts, facts

which may not point clearly to a conclusion for fifty or a hundred years" (pp. 120-1). Sir Oliver Lodge has another long report in the *Proceedings* (vol. xxiii., p. 127) on sittings begun with Mrs. Piper in 1906; and a considerable part of his new book, *The Survival of Man*, is a reproduction (some of it quoted verbatim) of this report and of various earlier publications concerning the same medium and her "controls." An examination of James and Lodge leaves the impression that the new material has added but little of importance to the subject under investigation. Persons already familiar with the history of psychical research will be disappointed that Sir Oliver Lodge should have thrown together old materials in a work heralded as "the most distinguished book of his career"; others may welcome his clear statement of certain phases of the Society's work and his own optimistic interpretation of its results. A. C. Pigou, reviewing the evidence for alleged communications with the dead, offered by the method of "cross correspondences," comes to a negative conclusion. The agency involved is, so he thinks, "a product of the subliminal activity of some living person" (*Proceedings*, xxiii., 286). The recent visit to the United States of the Italian medium, Eusapia Palladino, has revived interest in the woman's unusual history and in the "physical phenomena of spiritualism." Messrs. Feilding, Baggally and Carrington wrote for the *British Proceedings* (xxiii., 309) a long account of sittings held at Naples in November, 1908. They conclude "that some of the phenomena were genuine and the others not proved to be either genuine or fraudulent" (p. 565). A more extensive investigation of Palladino was made (1905-8) in Paris by the *Institut général psychologique*. The report (*Bulletin* 5-6, 8-ème année) is admirably conservative, but it throws little light upon the agencies involved. A book that contains much of human interest is entitled *Both Sides of the Veil*, written by Anne M. Robbins, a person who has been for many years inside the Piper circle in Boston. Miss Robbins does not pose as an "authority" in psychical research, neither does she offer her communications with "spirits" as evidence, but "simply for what they are." *Modern Light on Immortality* (H. Frank) is an ingenious though labored attempt to coax from modern science the proof of human immortality that the historical religions and philosophies have failed, according to the author, to furnish. The attempt is based upon speculative biology—more specifically upon E. Haeckel, "an authority all must admit is supreme." The book will appeal to the adolescent mind. Its biology and its psychology (both taken at second or third hand) are, however, bad.

PSYCHOLOGICAL ASSOCIATION, AMERICAN. See **PSYCHOLOGY**.

PSYCHOLOGY. The rapid growth of applied psychology continued in 1909. It is in itself, however, of less import to the science than in its retroactive effect upon research and construction. The occupation of the psychologist with problems of the school-room, the law court, the clinic and the insane hospital inevitably shapes his conception of what is most worth doing within psychology itself. At present men are divided on the question whether the retroactive process is enriching or contami-

nating the science. For current views see H. Münsterberg, *Psychotherapy*, and W. Wundt, *Psychologische Studien*, v. 1. The process itself is apparent in the emphasis laid, during the past year, upon such subjects as memory, individual types and differences, and abnormal states. Like most other disciplines, psychology has felt the inspiration of the Darwin anniversaries. (See **DARWIN MEMORIAL**.) Evolutionary concepts have been used with extraordinary freedom during the past few months, but they can hardly be said really to have been naturalized as yet within the science. (See R. Semon, *Die mnemischen Empfindungen*; G. S. Hall, *Evolution and Psychology in Fifty Years of Darwinism*; J. R. Angell, *The Influence of Darwin on Psychology*; *Psychological Review*, xvi., 152.)

MEETINGS. The year 1909 was made notable within psychology by the unusual number of general meetings and conferences. The Sixth International Congress of Psychology convened in Geneva on August 3. All the main branches of psychology, pure and applied, furnished topics of discussion. The Congress declared its intention of holding the next meeting (1913) in the United States. The 18th annual meeting of the American Psychological Association was held at Cambridge during the Christmas holidays under the presidency of Professor C. H. Judd of the University of Chicago. The Southern Society for Philosophy and Psychology met at the same time in Charlotte, N. C. The annual conference of the Experimentalists occurred at Princeton, April 8-10. The celebration of the twentieth anniversary of Clark University in September was made the occasion of an international conference of psychologists. Among the distinguished Europeans who took part were Professors Freud (Vienna), Stern (Breslau), and Jung (Zurich). The psychology of testimony and of the abnormal occupied a prominent place on the programme. Psychology sustained a heavy loss in the death of Professor Hermann Ebbinghaus of Halle. Ebbinghaus was the author of the first experimental monograph on memory (1885), of *Grundzüge der Psychologie* (1902) and of *Abriss der Psychologie* (1908). He was one of the founders and editors of the periodical, the *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*. The death of C. Lombroso recalls his distinguished work upon genius and upon the criminal type.

GENERAL BOOKS AND TREATISES. A new instalment (Band ii., *Mythus und Religion*, Teil iii.) of Wundt's *Völkerpsychologie* appeared early in the year. Most of its eight hundred pages are devoted to the nature-myth considered in its three developmental forms, the fairy-tale, the saga and the legend. The final chapter treats of the origin of religion. This monumental work upon the evolutionary development of speech, myth and custom brings under psychological laws a bewildering mass of facts that have never before been adequately systematized. Until last year the materials for the experimental study of thought were scattered through monographs and magazine articles, and investigators were at odds as regards problem and method. The new book by Professor E. B. Titchener, *Lectures on the Experimental Psychology of the Thought Processes*, reviews all the antecedent studies, inventories their results, and sets forth their value to the

science. A work of more general scope, written by the same author, is *A Text-Book of Psychology*, Part 1, 1909, which will, when it is completed, take the place of *An Outline of Psychology*, first written in 1896. A careful comparison of the two books indicates the substantial advances that the science has made in a dozen years. The part of the *Text-Book* now published covers sensation, affection and attention. The appearance, during 1909, of *A Text-Book of Experimental Psychology*, from the pen of an English writer (C. S. Myers), is an unusual event. England has been prolific in psychologies, but not of the experimental sort. The volume, which is well written, shows the double influence of American and Continental systems. A general work of quite a different character is H. R. Marshall's *Consciousness*, a theoretical treatise on the nature of mind. A volume unique in psychology is R. Schulze's *Aus der Werkstatt der experimentellen Psychologie und Pädagogik*, which seeks the extension of experimental technique in psychology and education. It is neither a manual nor a text-book, but similar to both. The material is conveniently arranged under the various chapter-headings of psychology, "Ideas," "Feelings," "Memory," etc. It is lavishly and effectively illustrated by drawings and photographs. The book will be of service both in pure and in applied psychology. Two new books on memory, by H. J. Watt (Glasgow), *The Economy and Training of Memory*, and Max Offner (Munich), *Das Gedächtnis*, have in view the teacher and the student. The first is a popular and readable exposition of experimental work, with especial emphasis laid on the means of economizing and conserving memory. Offner's book is a more intensive and more technical account of methods and results. Both books are written by men who know the laboratory at first hand.

SENSATION. Auditory. The new theory of clang-tint or "musical quality" proposed by Herrmann-Goldap in 1907 has stimulated the Berlin laboratory, long famous for its skill in psychological acoustics, to investigate the claims of this theory of constant-pitch elements in instrumental sounds. In describing these investigations, W. Köhler (*Zeitschrift für Psychologie*, liv., 241) inclines toward the old Helmholtzian theory of harmonic overtones. He rejects the "tone-tint" theory of his master, Stumpf, and instead derives clang-int from the "tint" or "color" of the intervals furnished by the upper partials or overtones. Thus a note containing but two overtones, which stand in the relation of 1:2, could have its character determined by the octave-color," whereas a three-component note 1:2:3 would add to "octaveness" the colors of the fifth (2:3) and the twelfth (1:3). Köhler accomplished the difficult feat of photographing the movements of the drumskin of the ear under stimulation. It is to be hoped that a continuation of the work will clear up the vexed problem of the relation obtaining between musical sound and speech. Every one has heard of the "sixth sense" by means of which the blind are supposed to detect the presence and position of resting objects placed at a distance. The identity of this sixth sense has long been a matter of controversy. Heat, air currents, pressure on the face, jarring of the sound, and odor are among the explanations offered. The recent experiments of L. Trüschel

(*Archiv für die gesamte Psych.*, xiv., 133) make it appear as highly probable that the reflexion of sound-waves from the object are largely responsible for the perception. The common failure of the blind to detect any auditory element in the perception is only another illustration of the fact, brought out constantly by "occult" phenomena, that an accurate introspective account of sense-perception demands the most thorough psychological training in observation. **Organic.** The difficult quest for sensory qualities arising from stimulation of the internal organs (organic sensations) has been carried on during 1909 with much energy. E. Murray gives a critical and historical review of the subject (*Amer. Jour. of Psych.*, xx., 386), clearing up ambiguities and contradictions which had gradually found their way into the literature. The article fairly opens for serious investigation the whole field of the organic sensations. E. Becher (*Zeitsch. f. Psych.*, xlix., 341; *Arch. f. d. ges. Psych.*, xv., 356) introduced a small rubber tube into the œsophagus and stomach, through which he applied to these organs thermal (warm and cold), mechanical (pressure), and electrical stimuli. The œsophagus responded with sensations in every case. It gave pain also, under heavy pressure. The sensitivity was, however, less than that of the skin. At times the sensations had a peculiar coloring. The same kinds of stimulus applied to the stomach returned no sensations. But E. Meumann found (*Arch. f. d. ges. Psych.*, xiv., 279; xvi., 228) that pumping the stomach full of air and then emptying it gave rise to sensations of "fullness" and "emptiness," which he thinks derive, at least in part, from the stomach itself. He also produced a peculiar "burning" sensation from large doses of white pepper swallowed in capsules and followed by draughts of water. Meumann (in disagreement with Becher) credits both the stomach and intestines with sensibility. Upon the whole, Meumann's results, supported by experiments of C. Ritter (*Arch. f. klinische Chirurgie*, xl., Heft 2) indicate a swing of opinion away from the older view of the surgeons and toward a belief in a well-marked sensitivity of the visceral organs. **Dermal.** Curiously enough the end-organs of the skin, which subserve pressure, touch, warmth and cold, pain, etc., and which seemed twenty years ago to be on the way to accurate description, are again under discussion. The question was reopened by English physiologists (Head, Rivers and Sherren, *Brain*, 1906-8), who worked after injury or section of the nerves of the skin, and it has been continued through the past year by F. I. Franz (*Jour. of Comp. Neur. and Psych.*, xix., 107, 215), whose results disagree, in some respects, with the English results. Franz offers, however, no final theory of cutaneous sensibility. In a study of tickle (*Arch. f. Physiol.*, 1909, 1 and 27) M. Buch distinguishes dermal and deep-lying tickle, which he supposes to have had an entirely different racial history.

PERCEPTION, ACTION AND ATTENTION. Rhythm. The impression has prevailed in psychology that a purely visual rhythm does not exist; that rhythm demands auditory or motor factors. Recent work in the Berlin laboratory, however, has led K. Koffka to the opposite conclusion (*Zeitschr. f. Psych.*, lii., 1). His observers were shown disks lighted at regular intervals by a

Geissler tube. Successive flashes were, under certain conditions, combined in rhythmic groups without the intervention—so far as the introspective reports go—of any motor or auditory process. The method is ingenious, but the outcome—so far as it throws light on the nature and the theory of rhythm—is disappointing. The author's formulation of the nature of the rhythmizing consciousness as an "activity of the subject" is highly unsatisfactory. *Fatigue*. The literature of fatigue is large. Few titles in it, however, are more important than C. S. Yoakum's *An Experimental Study of Fatigue* (*Psych. Rev.*, *Psych. Monographs*, 46). The analysis of physical and mental fatigue, of effort and exhaustion, is unusually thorough. "Sensations of fatigue" are found, which derive from sense organs in muscles indirectly concerned in performing a specific task. *Attention*. Variation in the degree of attention—from concentration to inattention—is a matter of common observation. The exact measurement of this variation has, however, baffled the psychologist. It is noteworthy, then, that L. R. Geissler, working in the Cornell laboratory (*Amer. Jour. of Psych.*, xx., 473), should have succeeded in expressing the degree of attention in terms of the clearness or obscurity of the processes standing in consciousness. Geissler found, further, that the observer's direct estimation of degree of attention accorded well with the quickness and accuracy of arithmetical and other forms of work done at the time. The experiments indicate that, with some observers at least, as many as three or even more degrees of attention (clearness) may exist side by side. A related study of expectation (W. H. Pyle, *ibid.*, xx., 530) brought out the curious fact that while the body takes the typical attentive attitude (straining, reaching out) in expectation, the expectant mind is not attentive, inasmuch as it lacks focus: it is only in preparation for an attentive state.

INDIVIDUAL AND CLASS PSYCHOLOGY. *Character*. In the YEAR BOOKS for 1907 (p. 661) and 1908 (p. 603), attention was called to the investigations of the Dutch psychologists, Heymans and Wiersma. This work has been continued (*Zeitschr. f. Psych.*, li, 1) in the direction of the study of types of character. These men have succeeded in integrating more or less simple mental traits to form types of mind. Eight such types are named: amorphous, apathetic, nervous, sentimental, sanguine, phlegmatic, choleric and impassioned. The method and results are important, both for the analytic study of character and temperament and as a basis for the investigation of mental inheritance. The point of view is akin to that of the Mendelians in biology. *Sex*. The difference in weight between the brain of man and of woman has often been appealed to in connection with assumed differences of mental endowment. H. H. Donaldson now demonstrates the fact that in the rat, as in the human species, the greater weight of the central nervous system in the male is "completely explained by the greater body length" (*Jour. of Comp. Neur. and Psych.*, xix, 155). In a discussion of the psychological effects of bodily nakedness, Havelock Ellis notes (*Amer. Jour. of Psych.*, xx., 297) a gradual "movement of revolt against nakedness" throughout the Christian era, which became completely victorious in the nineteenth century. Ellis contends that the modern ban upon naked-

ness tends to prudishness, a form of false modesty. He advocates the cultivation of nakedness on grounds of sexual hygiene and of aesthetics, and for its "dynamic psychological influence" upon morals. *General Intelligence*. Some years ago C. Spearman proposed to measure the "general intelligence" of an individual by experimental observation of the accuracy of such simple operations as the discrimination of weights or tones. Within the last year work reported from Teachers College in Columbia University (*Amer. Jour. of Psych.*, xx., 364) indicates, however, that no significant correlation obtains between these simple operations and the more complex "intellectual" functions of human beings. From these negative results, Professor Thorndike draws the inference that "the efficiency of a man's equipment for the specifically human task of managing ideas is only loosely correlated with the efficiency of the simpler sensori-motor apparatus which he possesses in common with other species." C. Burt, working with English schoolboys (*Brit. Jour. of Psych.*, iii., 94), fails likewise to discover any "fundamental identity between intelligence and general sensory discrimination"; but he concedes that a close correlation may obtain for those senses that possess a "high cognitive value." Burt's tests involving attention and association brought out a higher and more consistent correlation with intelligence than the discrimination tests. However, no single test was found to furnish a reliable measure of intellectual ability. Against Thorndike's separation of human and animal endowment, Burt urges that all the functions of the human mind (including those held in common with animals) lie organized within "a single integrative system." The study furnishes some evidence for the hereditary transmission of intellectual proficiency.

ABNORMAL AND CRIMINAL. *Diagnosis of Crime*. Much has been made lately of the "associative reaction" as a means of discovering facts either unknown to or voluntarily concealed by the subject. A person suspected of criminal conduct, e. g., is given a series of words, some of which are suggestive of the crime in question, and he is instructed to call out the first thing that comes to mind after each word of the series is heard. From the nature of the response and the time consumed, the experimenter attempts to arrive at the subject's knowledge of, or participation in, the crime (*Tatbestandsdiagnostik*). Within the year the method was applied—for the sake of illustration—to normal students in psychology at the Harvard laboratory (*Amer. Jour. of Psych.*, xx., 22). A member of the class was sent from the audience room and asked to choose and to examine either one of two boxes; one box containing a dancing mouse, the other a pack of playing cards. After the subject's return to the room, he was asked to respond as quickly as possible—but without betraying his choice—to two lists of words. Certain words ("significant" words) in the one list (8 out of 30) referred to the contents of the mouse-box; in the other list, to the contents of the card-box. The responses to those words which referred to the box actually examined were considerably delayed. From this delay, the experimenter correctly inferred which of the two boxes had been opened by the subject. Again, this form of mental diagnosis succeeded when the experi-

menter sought to discover which of two persons was in possession of certain trivial facts. In spite of the success of the tests, however, it should be pointed out that the mental conditions involved are exceedingly complex and require careful and expert manipulation. The Harvard study concludes with a useful bibliography. (Cf. a similar study in method by F. G. Henke and M. W. Eddy, *Psych. Rev.*, xvi., 399.) Critics of the reaction-method of diagnosis have contended that while it was of great psychological interest, the method could not be applied to the serious examination of actual criminals. It remained for P. Stein, of Budapest, to make a somewhat extended test upon suspected and confessed criminals (*Zeitschr. f. Psych.*, lii., 161). He found, for ten cases, an average delay for significant or "critical" words of 1.6 sec. This delay did not appear with innocent controls who were put through the same tests. Stein concludes that the method is valuable in the hands of careful and expert investigators. (For a general review of the psychology of testimony see *Psych. Bull.*, vi., 153). *Psychoanalysis*. Professor Freud's visit paid to America during the year, and the appearance in revised form of the book which Freud himself regards as the key to his system (S. Freud, *Die Traumdeutung*, 2d ed., 1909) have combined to deepen an interest in the theory that dreams are the expression of unsatisfied and unfulfilled wishes. The wish is, according to Freud, often latent, and then it is revealed even to the dreamer, only by a process of psychoanalysis. Moreover, the basis of the dream is said to be sexual in origin. Freud's doctrine of the influence in mind of latent mental processes, and his method of dealing with them, have been applied not only to dreams, but also to insane and hysterical states, and in the past year or so to myths, folk-tales, legends and literary personages. (S. Freud, *Selected Papers on Hysteria and other Psychoneuroses*; K. Abraham, *Traum und Mythos*; O. Ranke, *Der Mythos von der Geburt des Helden*.) *Literary Plagiarism*. A. Pick shows (*Zeitschr. f. Psych.*, 1, 401) by the description of a number of cases that literary plagiarism is at times pathological and that it may be entirely unintentional. He cites as examples Lamartine, Landor, Nietzsche and other famous men. The pathological forms rest upon a disorder of memory; they involve both intellectual and emotive factors.

ANIMAL PSYCHOLOGY. *Tropisms*. The double influence of physiology and zoölogy continued in a marked degree throughout the year. J. Loeb, of the University of California, reviewed at the Geneva Congress the history of the doctrine of animal tropisms which seeks a physico-chemical explanation of mental processes (*Die Bedeutung der Tropismen für die Psychologie*). The doctrine lays emphasis upon the chemical processes directly intervening between stimulation and responsive movement. The theory as stated and defended against Jennings and other critics at the Congress, appears less extreme and more useful than under its older formulation. *The Salivary Reflex*. The expressive method—the method of interpreting consciousness from organic changes and movements—is fundamental to comparative psychology. The development of a new form of expression, the "salivary reflex" is therefore noteworthy. The Russian physiologist, Pawlow, and his pupils have lately pub-

lished some forty or fifty papers concerning the effect produced upon salivary secretion (say, of the dog) by sights, sounds, odors, tastes, etc. They have shown that this secretion varies both in quality and in amount with change of stimulus—even of such a stimulus as a colored card or a musical sound that has been associated only temporarily with food (taste or smell). It seems likely that the method will serve a more useful purpose in the physiology of the nervous system than in psychology. An account of the methods and of some of the results, together with a bibliography, was published in the August number of the *Psychological Bulletin* (vi., 257). *General Treatises*. It is unfortunate that the two general treatises of the year should prove to be unsatisfactory. Georges Bohn, the author of many clever experimental studies upon animals, has brought out his theoretical and systematic views on comparative psychology (*La naissance de l'intelligence*). Bohn is profoundly influenced by Loeb and other men who write for psychology from the biologist's point of view. He lacks psychological background, and for that reason he constantly confuses biological and mental terms. The trained psychologist will, however, find the book useful; in the hands of the immature student it will lead to disaster. A careful estimate of it will be found in the *Journal of Comp. Neur. and Psych.* (xix., 589). A much safer book, as regards the general point of view, is E. A. Kirkpatrick's *Genetic Psychology*. It is to be regretted that the author should have fallen into the pitfall of the evolutionist, contenting himself often with loose, vague reasoning, and especially with the use of the argument that whatever appears in nature is the result of adaptation. The volume makes the praiseworthy attempt to construct a *genetic* gradation of minds in the animal series on the basis of experimental work. *Bird Calls*. A good piece of descriptive work on vocal sounds and expressive movements in birds is reported in the *Jour. of Comp. Neur. and Psych.* (xix., 29), by W. Craig. The writer observed the blond ring dove, following it through its seasonal and its life cycle. Although the article is crude psychologically, it furnishes valuable material for the study of emotional expression—found for this form to be hereditary, not imitative (see YEAR BOOK, 1908, p. 604). *Taste*. R. E. Sheldon (*ibid.*, xix., 273), working at Woods Hole on the dog fish (*Mustelus canis*), found the entire surface of the body sensitive to chemical stimulation. This result suggests a diffused sense of taste; but Sheldon affirms that the reception of chemical substances was due (excepting the region of the mouth) to nerves of "general sensation," and not to gustatory nerves. He prefers, therefore, to speak of a "chemical sense." *Color-Vision*. The color-vision of animals attracted much interest during the year. A typical piece of work was done by J. B. Watson, on monkeys (*ibid.*, xix.) Watson selected narrow bands from an arc-light spectrum and presented them, with or without food, to his (Western and Old World) monkeys. The experiments failed to demonstrate beyond a question the capacity to discriminate colors; they indicate rather that color-vision plays, at most, a subordinate part in the monkey's life. The article is important for laboratory technique. Cole and Long's experiments on the color-vision of the raccoon (*ibid.*, xix., 657), came to a

similar issue. The results of S. S. Colvin and C. C. Burford, who experimented with dogs, a cat and a squirrel (*Psych. Rev., Psych. Monographs*, 44, 1), were vitiated by faulty method. *Imitation*. The Harvard work on imitation in monkeys, mentioned in 1908 (p. 604), appeared last year in full (*Jour. of Comp. Neur. and Psych.*, xix., 337). By watching each other's movements, the monkeys learned to go through a number of more or less complicated operations. In most cases, however, the "imitation" was not so much a duplication of the actions watched as an attack made in the imitator's own individual way upon an object rendered interesting by the presence and the movements of another monkey. The psychological analysis given leaves much to be desired; but the author promises a further study.

PSYCHOTHERAPY or **PSYCHOTHERAPEUTICS**: The treatment of diseases and disorders through mental agencies. The work of the year consisted, in large measure, of the exploitation and critical comparison of widely differing methods: psychoanalysis (Freud), rational and persuasive therapeutics (Dubois), hypnosis, hypnoidal states, work, rest, religious faith and prayer. An important series of papers, read by physicians, psychiatrists and neurologists before the Therapeutic Society (May), were printed in book form under the title *Psychotherapeutics*. The papers, which discuss the principles, scope and methods of psychotherapy, fairly represent the present state of this branch of the art of healing. The disorders treated were conceived to be "unhealthy habitual states of mind." "The therapeutic process is the association through education of healthy ideas and stimuli that adapt the individual to his environment." No current aspect of the subject is more significant than the insistent demand for mental prophylaxy; the prevention, especially in childhood, of those unhealthy inclinations of mind which ultimately reveal themselves in fears, obsessions, hysterical accidents, loss of self-control, pathological fatigues—a multitude of neurasthenic and psychasthenic states. Apropos of this tendency to seek preventive measures should be mentioned the appearance in English, during the year, of P. Dubois's *Self Control and How to Secure It*, and J. Payot's *The Education of the Will*. New publications from the leaders in the Emmanuel Movement continued to emphasize (though perhaps less strongly than before) religious motives in psychotherapy. A small work by E. Worcester and S. McComb, designed as a defense and an exposition of the movement, appeared first in magazine articles and later (November) as a book, *The Christian Religion as a Healing Power*. *Psychotherapy*, by H. Münsterberg, discusses the relation of psychology to medicine. The volume belongs to the series on applied psychology in which *On the Witness Stand* appeared in 1908. Professor Münsterberg finds psychotherapy in a chaotic condition, and he tries, by expounding the underlying principles of psychology, to place the subject upon a scientific basis. The book is by all odds the most important document of the year in the case of psychotherapy. The reader of it should gain an intelligent idea of its methods, of its proper use, and of its intimate relations with psychology, with medicine, and with the church. The historical miracles of healing take on a new interest when they are considered in the light of current doctrines and

practices of psychotherapy. C. W. Waddle has made a study of them in the *American Journal of Psychology* (xx., 219). He maintains that "those cures which have always seemed miraculous, are the cures effected in large measure by the influence of the mind on the body. They have seemed miraculous because the laws under which they were effected were not understood." The lack of explanation has led to their religious interpretation. A study of the world's great "healers" reveals the fact that they have been "in childhood nervous, excitable, hysterical, dreamers of dreams, seers of visions, subject to auditory and visual hallucinations . . . personalities supersensitive to mental influences both subjective and external. . . . In short, all things combined to develop a personality that could make effectual suggestions favorable to mental and physical well-being." See **PSYCHOLOGY**.

PUBLIC HEALTH. See **FOOD AND NUTRITION**.

PUBLIC HEALTH ASSOCIATION, AMERICAN. A society founded in 1872, which has for its object the advancement of sanitary science and the promotion of measures for the application of public hygiene. The work of the Association is divided into four parts. At the meetings of the General Association general subjects in relation to sanitary science are presented. The general session of 1909 was held at Richmond, Va., October 19-22. Among the important subjects discussed were "The Place of Public Hygiene in Modern Sociology," "Industrial Hygiene," "Fresh Air and Ventilation Problems in the Industries," "Popular Educational Movements in Public Health," and papers relating in general to hygienic subjects. The Association adopted a resolution protesting against the appointment of health officers on any basis other than fitness for the discharge of their duties, and urging their retention during good behavior. It appointed a committee to confer with representatives of other national organizations having to do directly or indirectly with public health problems, with a view to cooperative work. It also gave serious consideration to the establishment of an endowment fund to put the work of the Association on a better financial basis. The Association received during the year a legacy of \$2000 from the estate of the late Henry Lomb. The next meeting will be held in Milwaukee, Wisconsin, in 1910. The officers of the Association for 1909 were: President, Dr. Charles O. Probst, Columbus, O.; first vice-president, Dr. Charles A. Hodgetts, Toronto, Ont.; second vice-president, Dr. Ernest C. Levy, Richmond, Va.; third vice-president, Dr. Frederico Torralbas, Havana, Cuba; secretary, Dr. William C. Woodward, Washington, D. C.; treasurer, Dr. Frank W. Wright, New Haven, Conn.

PUBLIC LANDS. See **LANDS, PUBLIC**.

PUBLIC SCHOOLS. See **EDUCATION IN THE UNITED STATES**.

PUGILISM. See **BOXING**.

PULLIAM, HENRY CLAY. An American baseball official, died by his own hand, July 28, 1909. He was born in Paducah, Ky., in 1869. He graduated from the law department of the University of Virginia, but subsequently engaged in newspaper work. He early took an interest in baseball, and was made secretary of the Louisville Baseball Club. In 1897 he was elected to the State Assembly. He was secre-

tary and treasurer of the Pittsburg Club from 1900 to 1903, and in 1904 he was elected president of the National League, which position he retained until his death. It is due largely to Mr. Pulliam's efforts and influence that professional baseball reached and was maintained on so high a level as a sport during his incumbency of the office of president of the National League.

PUMPING MACHINERY. One of the most interesting developments in applied mechanics of the year 1909 was a new gas pump in which was involved a novel application of the internal combustion principle. This pump, designed by H. A. Humphrey, a British authority on the gas engine, was described at length in *Engineering* (London) of October 15, and its design and merits were widely discussed. So great fuel economy was exhibited in trials conducted by Professor W. Cawthorne Unwin that the opinion was advanced that by using water so pumped to drive a hydraulic turbine one shaft horse power could be obtained at an expenditure of fuel less than is now possible by any known commercial method involving the use of gaseous fuel. The Humphrey pump consists of a U tube with legs of unequal length, with the shorter partially immersed in the supply tank and the larger communicating with the pressure or reservoir tank where the water is delivered. Valves are provided below the water level in the suction tank, and these admit the water to the shorter leg of the tube above which there is a combustion chamber, where gas under compression may be freed by an electric spark. The explosion thus produced sets in motion the column of water in the larger leg by the U tube and this mass of water acquiring a considerable momentum continues to flow after the pressure of the gases becomes reduced to that of the atmosphere and the exhaust valve is opened. The column, however, is still in motion and water flows in from the suction tank. A backward flow of the water in the larger arm then takes place and after the spent gases are expelled air is compressed in the combustion space. This pressure is sufficient to give fresh momentum to the water, and as the pressure falls in the combustion chamber an explosive charge of air and gas is drawn which at the next oscillation is compressed and then ignited, as described in *Engineering*: "The cycle, it will be seen, consists, therefore, of a long expansion stroke, in which the pressure falls to a little below that of the atmosphere, and water is drawn in from the suction tank, and air through the scavenger valve. This is followed by a long return stroke during which the products of combustion are expelled. After this comes a short compression stroke at the end of which the charge is ignited. The pump operates, therefore, on a four-stroke cycle, the strokes being equal in length." A single missed ignition does not stop the working of the pump and the only moving parts are the eight automatic valves. It was found that the consumption of gas per pump horse power per hour of the Humphrey pump was 83.1 cubic feet, as compared with 120 to 127 cubic feet for a gas engine driving a centrifugal pump required to do 16 pump horse power on a lift of 33 feet. The fuel consumption of the Humphrey gas pump was figured at 1.06 pounds of coal per pump horse power per hour, as compared with 1.622 to 1.996 pounds for steam pumping

engines of high efficiency. Professor Unwin concludes that the fuel consumption of the Humphrey pump "reckoned on the work done in lifting water, was less than in any pumping arrangement, either by gas or steam, hitherto recorded."

PURDUE UNIVERSITY. An institution of higher learning at Lafayette, Ind., founded in 1874. In 1908-9 the number of students was 1942 and the faculty numbered 149. There were in the library 27,300 bound volumes and 5700 pamphlets. There were received during the year in donations \$80,000. The fund was completed for the erection of a memorial gymnasium. This building was completed and dedicated in May, 1909. During the year a separate department in applied mechanics was established, and Professor R. A. Dukes, formerly of the Case School of Applied Science, was appointed head of the department. The president is W. E. Stone. The productive funds of the university amount to \$340,000 and the total income is about \$284,000.

PURE FOOD. See **FOOD AND NUTRITION.**

PURE FOOD LEGISLATION. See **FOOD AND NUTRITION.**

QUAKERS. See **FRIENDS.**

QUEBEC. A province of Canada. Area, 351,872 square miles. Population (1891), 1,648,898. Capital, Quebec, with 68,840 inhabitants in 1901 and about 78,000 in 1909. Montreal, the largest city in Canada, had 267,730 inhabitants in 1901 and about 390,000 in 1909. The executive authority rests with a lieutenant-governor, appointed by the Governor-General of Canada and acting through a responsible ministry. The legislative power devolves upon a parliament of two houses, the Legislative Council (24 appointed life members) and the Legislative Assembly (74 members elected for five years). The Lieutenant-Governor in 1909 was Sir C. Alphonse P. Pelletier; the Prime Minister and Attorney-General, Sir Lomer Gouin. For statistics and other details, see **CANADA.**

HISTORY. The one-man one-vote principle which prevailed in the province of Ontario was adopted by the Quebec government for both provincial and dominion elections. Early in February the report of the Royal Commission appointed by the Quebec government to consider the question of employers' liability for accidents was announced. It declared in favor of laws modeled on the English laws except as regarded domestic servants and it recommended an inter-provincial conference to remove differences that might exist between the provincial laws. The Provincial Legislature was opened on March 2. The speech from the throne expressed the hope that Ungava would be annexed during the year and proposed the establishment of two technical schools, three teachers' training schools and a commission for checking the spread of tuberculosis. Quebec was the centre of the Nationalist party and the agitation against the government's policy of naval defense. Considerable activity was shown by this party in the matter in spite of the fact that both the Liberals and Conservatives were agreed upon it and that Parliament was committed to it.

QUEBEC BRIDGE. See **BRIDGES.**

QUEENSLAND. A State of Australia. Area, 670,500 square miles. Estimated population, December 31, 1908, 558,237. The capital is Brisbane; population, within ten-mile radius, 137,670. The executive authority rests with a governor, appointed by the Crown and acting through a responsible ministry. The Parliament consists of two houses, the Legislative Council (45 appointed life members) and the Legislative Assembly (72 members, elected for three years by male and female suffrage). The Governor in 1909 was Sir William McGregor; the Premier, W. Kidston.

HISTORY. On the opening of Parliament, June 30, the government congratulated the country upon its prosperity and the good season, declared its policy in naval defense to be non-interference, and that the best service it could render would be the opening up of the coast lands and their settlement by a loyal white population. It promised to submit proposals for a number of new railways, although railway construction was already going on faster than ever before and announced that a survey was to be held for a trans-Queensland line to develop good mining and grazing regions and to establish serviceable mail routes with eastern Australia. In August the Lieutenant-Governor granted a dissolution of the Legislative Assembly. The elections returned forty-one members of the government party, twenty-seven Labor candidates and four members of the Independent opposition. The only minister who failed of reelection was Mr. Jackson, the Minister of Mines. The election was hailed by the newspapers as the downfall of the three-party system. During the third week of August Queensland celebrated the jubilee of her existence as a self-governing state. An exhibition was held, which opened with an attendance estimated at 50,000.

RABIES. Kerr and Stimson of the Public Health and Marine Hospital Service found that there were 111 deaths in human beings from hydrophobia reported from 30 States during the year 1908. Rabies was reported in the lower animals from at least 534 localities in 39 States and Territories, including the District of Columbia. Evidence was also secured of nearly 1500 persons, who, on account of exposure to rabies, were obliged to take the Pasteur treatment. The disease was disseminated throughout the eastern three-fourths of the country, and seems to have been unknown during 1908 only in the Rocky Mountain and Pacific Slope regions. There has been a widespread demand for antirabic virus throughout the United States. The extent of rabies in New York State is indicated by the fact that 45 outbreaks of the disease, caused by stray dogs, were reported to the Chief Veterinarian of the Department of Agriculture between January, 1906, and September, 1908. There were 36 quarantines laid on account of the rabies, and there were 9 places in which rabies was diagnosed, but in which quarantine was not laid by the Department of Agriculture. In Prussia during 1908, 295 persons were injured by animals either rabid or suspected of rabies. Of the 279 who were inoculated, 2 died, and of 16 who were not treated, 1 died; in 1907, of 382 inoculated, 2 died; in 1906, 4 out of 342; 1905, 3 out of 322; 1904, 5 out of 330; 1903, 4 out of 281. If only those who were bitten by an animal known to be rabid are considered, 2 out of 190 inoculated, died in 1908. Remlinger notes the

comparative rarity of rabies in Constantinople, in spite of the number of vagrant dogs (estimated as between 80,000 and 80,000) in this city. Only 49 dogs were brought to the public pound on account of the rabies in 1908, and of the 978 persons applying for treatment at the Ottoman Pasteur Institute, all but 157 came from outside of Constantinople. When infection does occur, however, it is unusually virulent. The dogs possess no natural immunity, but curiously enough keep strictly to their own territory, the dogs of one section of the city never venturing into another section, for if they do they are torn to pieces by the dogs of the section into which they intrude; therefore, when rabies does develop in one section, it never spreads to another. Furthermore, the dogs instinctively avoid one of their number who is sick with rabies. Sections to which the dogs confine themselves are sometimes not more than 150 feet long, and generations of dogs succeed each other without ever passing beyond these boundaries. Nitsch says that it is decisively shown that the Pasteur method of treatment decreases very considerably the percentage of mortality in persons bitten by rabid dogs. Without treatment, over 10 per cent perish, while under Pasteur treatment only about 1 per cent die.

RACING. The racing interests experienced another poor season in 1909 as the result of the anti-betting laws which drove several of the principal owners to take their horses abroad. J. R. Keene again had the largest winnings, his total for the season being \$112,586. This sum represented, however, a big falling off from Mr. Keene's 1908 winnings, which aggregated \$287,912 and illustrates the decline in the sport. Other winning owners in 1909 were S. C. Hildreth, \$109,230 and R. T. Wilson, Jr., \$39,410. In England W. Fairie was the principal winner with \$188,595. King Edward VII. was second, His Majesty's winnings aggregating \$100,720. The leading jockeys in 1909 were Dugan and Butwell in the United States and Wootton and Maher in England.

Several new running records were made in the United States in 1909. These included: 3½ furlongs, A. J. Small and Donan, in 40 seconds; 6 furlongs, Prince Ahmed, in 1 minute 11 seconds; 1 mile 70 yards, Ida May and Grania, in 1 minute 42½ seconds; 1¼ miles, Orcagna, in 3 minutes 17½ seconds; 2 miles, Fitz Herbert, in 3 minutes 25½ seconds.

New trotting records of the year were: 1 mile (yearling), against time, Miss Stokes, in 2 minutes, 19½ seconds; 1 mile, two-year-old, Native Belle, in 2 minutes 7½ seconds. The only new pacing record established was by Jim Logan, a three-year-old, who paced a mile in 2 minutes 5½ seconds.

Of the racing events in the United States during 1909, the most important, with their winners and time, were: The Futurity, Sweep, 1 minute 11½ seconds; Brooklyn Handicap, King James, 2 minutes, 4 seconds; Suburban Handicap, Fitz Herbert, 2 minutes 3½ seconds; Saratoga Handicap, Affliction, 2 minutes 5 seconds; Metropolitan Handicap, King James, 1 minute 40 seconds, and Kentucky Derby, Wietergreen, 2 minutes 8½ seconds. The English Derby was won by King Edward's Minerva, the time being 2 minutes 42½ seconds.

RACQUETS AND COURT TENNIS. The National Amateur Court Tennis championship tournament was held in Boston, April 5-10. It

the preliminary rounds C. S. Derby defeated J. A. L. Blake, 6-1, 4-6, 6-5, 6-5, and Joshua Crane defeated Foxhall Keene, 6-0, 6-2, 6-1. In the finals Crane defeated Derby, 6-1, 6-0, 6-0. The challenge round between Jay Gould, title holder, and Crane resulted in a victory for Gould, the score being 6-5, 3-6, 6-3. The Gold Racquet Championship was won at Tuxedo Park by H. F. McCormick, who defeated E. Hewitt in the final round, 17-14, 15-2, 15-7. The National Amateur Racquet Championship in singles was also won by McCormick. In the final round he defeated G. F. Brooke 15-6, 10-15, 18-17, 15-5. The doubles were won by H. Hereford and P. O. Haughton. New York again won the annual doubles racquet inter-city match with Philadelphia. The English Amateur Court Tennis Championship was won by E. H. Miles. Jay Gould, the holder of the English title, did not defend it. The English Amateur Racquet Championship went to E. M. Baerlein.

RADIOACTIVITY. See CHEMISTRY.

RADIOCHEMISTRY. See CHEMISTRY.

RAILWAYS. The year 1909 was marked by rapid recovery of the railways from the effects of the financial and business depression of the previous year. The industrial and commercial interests of the country regained confidence following the election of President Taft in November, 1908, and the railways quickly felt the expansion of trade which was the result. Gross earnings increased to a point closely approaching that of the banner year 1907 and owing to the continuance of the policies of retrenchment in expenditures, the net earnings of a number of companies made a better showing than in any previous year of their operation. For the first time since November, 1907, the reports of freight car surplus and shortage from 170 railways to the American Railway Association showed a net shortage amounting to 6000 cars. The surplus on April 29, 1908, was 425,000 cars; that is nearly one-fourth of the freight cars of the country were standing idle with no freight offered to be moved in them. The last reports of the year 1909 showed a net surplus of 34,300 cars.

COURT DECISIONS. A number of important decisions were handed down by State and Federal courts during 1909 in cases relating to laws affecting the interests of railways. The famous Standard Oil rebating suit in which Judge Landis of Chicago imposed a fine of \$29,000,000 in 1907 was retried in March, 1909, before Judge Anderson in Chicago following a reversal of the finding of Judge Landis by the United States Court of Appeals. Judge Anderson, after hearing the government's evidence and argument, threw the case out of court, thus ending the proceedings summarily. See STANDARD OIL CO.

The United States Supreme Court early in May handed down a decision upholding the constitutionality of the so-called "commodities clause" of the Hepburn Act of 1906, which prohibits a railway company which manufactures, mines or produces any commodity to move that commodity in interstate commerce. The decision of the court, however, was in effect a victory for the railways, for it was held that the prohibition did not apply to commodities manufactured, owned or mined by a corporation in which the railway is a stockholder. The antitrust roads, against which the clause was aimed, with the exception of the Delaware and

Hudson, which sells its coal at the mines, all own stocks of separate coal mining companies and hence the law does not affect their operations.

The Attorney-General withdrew the government's suit, alleging violation of the Sherman anti-trust law by the New York, New Haven and Hartford by reason of the virtual consolidation of the Boston and Maine with it. The suit was withdrawn late in June following the enactment of a Massachusetts law permitting the consolidation under certain restrictions.

In February the United States Supreme Court affirmed the verdict imposing a fine of \$128,000 on the New York Central and Hudson River Railroad for giving rebates to the American Sugar Refining Company on shipments of sugar to Detroit and Cleveland. The constitutionality of the anti-rebating clause of the interstate commerce act was unanimously upheld by the court.

Judge McPherson of the United States District Court on March 8 decided that the 2-cent fare law of Missouri, passed in 1907, was unconstitutional. He held that the rate was unremunerative and hence confiscatory. (See MISSOURI.) Similar litigation was pending in the State and Federal courts in Minnesota, South Dakota, Nebraska and Kansas, but no decisions were rendered during the year. In Virginia the State Corporation Commission voluntarily ruled that the railways in that State could increase their ticket rates from 2 cents to 2½ cents per mile provided interchangeable mileage books were sold at the 2-cent rate.

STATE RAILROAD COMMISSIONS. No new railroad commissions were created in 1908 or 1909. Forty States have commissions and New York has two. Perhaps the most important work done by any of the State commissions was the complete physical valuation of the railways in Minnesota, which was completed early in the year. It was probably the most exhaustive physical valuation of railways ever made and was of particular interest on account of the widespread interest in appraisements of railway values as a basis for rate regulation. The commission found that the total reproductive value of the 19 railways in the State was \$397,299,471, whereas the Minnesota proportion of their capitalization was but \$334,979,691, indicating that as a whole they were not over-capitalized. A bill enlarging the powers of the Connecticut Railroad Commission to include jurisdiction over public utility companies in the State failed of passage, but in Vermont a similar bill was passed and in Nevada the powers of the railroad commission were greatly enlarged. Bills creating new railroad commissions were defeated in the legislatures of Idaho and Utah, largely owing to the active efforts of the railway companies in these States, which conducted a publicity campaign to point out the effect on business produced by the pernicious acts of radical commissions in other States.

FEDERAL LEGISLATION. The session of Congress, held in the spring of 1909, was devoted principally to the framing of a new tariff bill, but the corporation tax law was passed and this will affect railway companies in common with all other corporations. The House of Representatives passed a bill empowering the Interstate Commerce Commission to investigate railway accidents, but it failed to

be considered by the Senate and did not become a law. It was again passed by the House late in December and gave promise of being accepted by the Senate before the end of the winter session. In its annual report presented to Congress at the end of 1909 the Interstate Commerce Commission asked for increased powers. Its principal recommendations were power to make physical valuations, to suspend the effectiveness of a change in rates pending a hearing, unrestricted discretion to establish through routes and joint rates, power to prescribe the conditions under which freight may be routed by a shipper; specific authority to institute proceedings without complaint from a shipper, control over railway capitalization and issues of bonds, and broader authority to prescribe and enforce "general regulations relating to the movement of traffic."

STATE RAILWAY LEGISLATION. At the beginning of 1909 14 States had laws in force limiting passenger fares on railways to 2 cents a mile. Twenty-seven of the largest railway systems operating in these States estimated that their combined loss in revenue due to the restrictions of the laws amounted to \$20,000,000 annually. The courts in several of the States declared 2-cent fare laws confiscatory and unconstitutional during the year. Many radical bills were introduced at the meetings of the legislatures of all but 8 States in the Union, but conservative policies generally prevailed and little drastic legislation resulted. Kansas passed a law prohibiting the use of public drinking cups in railway cars or stations and California passed a reciprocal demurrage law. In Wisconsin the railroad commission was given power to order changes in grades to abolish highway crossings with railways and to apportion the cost between the railways, the State and the county.

ACTIVITIES OF THE INTERSTATE COMMERCE COMMISSION. During 1909 the Interstate Commerce Commission continued to give most of its attention to interpretations of the interstate commerce acts for the guidance of shippers and carriers. It decided 591 cases instituted by formal complaint and 1097 additional proceedings were placed on the docket. For criminal violations of the acts to regulate commerce the commission caused to be returned 35 indictments; 42 prosecutions were concluded, and a total of \$304,233 was collected in fines. The Commission in its report to Congress says: "It is believed that violations of the act are decreasing in number, but the year's work has developed all the forms of wrongdoing known in previous years. There has been no decrease in the more insidious forms of rebating resulting from arrangements legal in every respect except in the result produced."

The Commission rendered several important decisions in cases brought before it. Among these were the Spokane and Denver rate cases in which it was held that the rates to these interior points were too high as compared with the rates to more distant points governed by water competition, although the force of water competition and its effect on rates was recognized. The Portland gateway was also ordered opened, the Commission holding that a railway, although offering adequate service over its own lines, could not compel the public to travel or shippers to route their freight exclusively over its lines by refusing to make all reasonable joint arrangements with other competing lines.

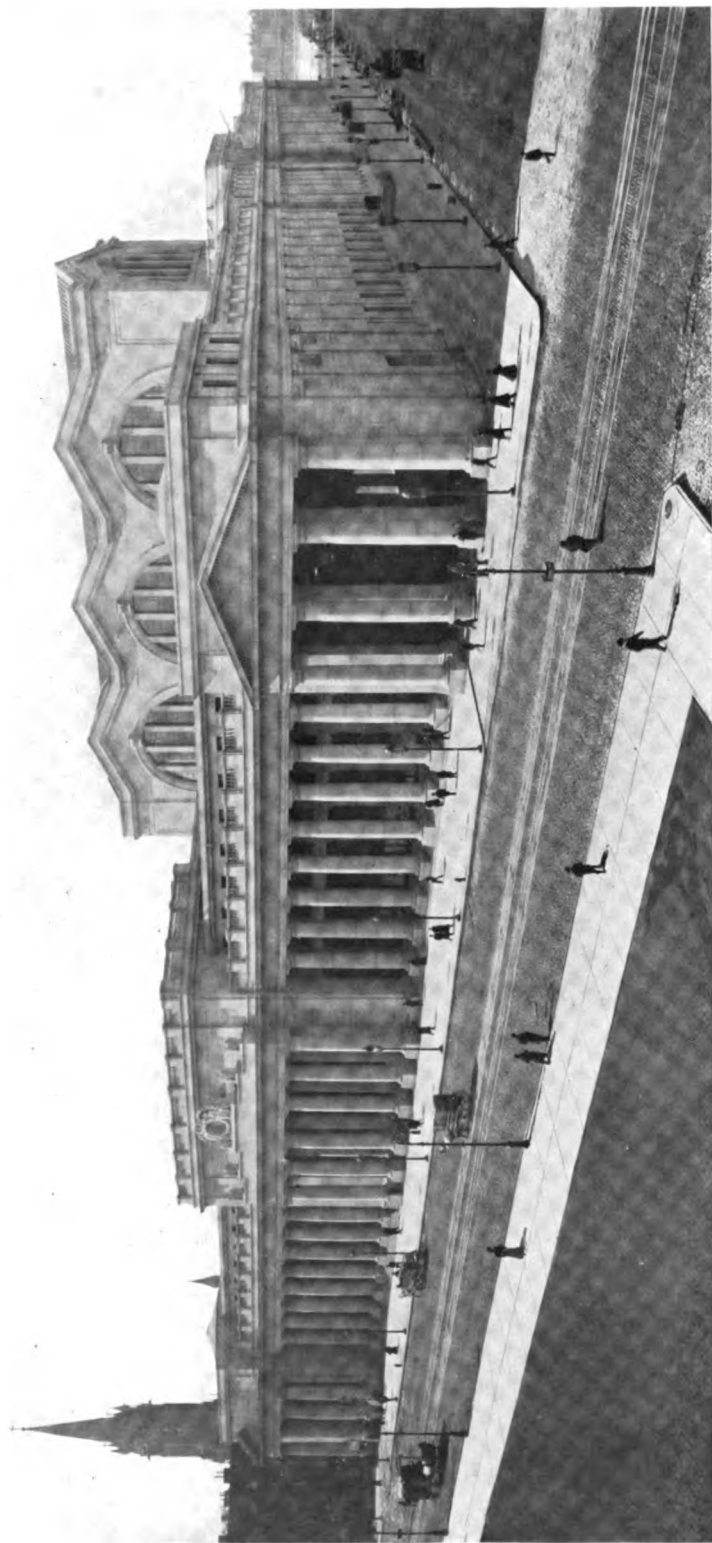
RECEIVERSHIPS. In the year following the fall panic of 1907, 24 railways, with an aggregate of 8009 miles of tracks and total capital liabilities of \$590,359,000, went into receiver's hands, but the general soundness of railroad financing was evidenced by the rapid check on the spread of bankruptcy proceedings in 1909. Only five roads, with a total of 859 miles and \$78,095,000 of outstanding stocks and bonds, had receivers appointed during the year. The Atlanta, Birmingham and Atlantic, with 572 miles, became insolvent in January, and the Chicago, Peoria and St. Louis, with 255 miles, failed to meet the interest on its bonds in July. The latter company attributed its failure largely to the effect on its earnings of the 2-cent fare law in Illinois.

A number of important railways which went into receiverships in 1908 were reorganized and sold at foreclosure sales during 1909. The Western Maryland, Chicago, Great Western and the Norfolk and Southern were included among these.

RAILWAY FINANCING. A steadily rising scale of prices in the bond and stock market during 1909 offered favorable opportunities for new financing and issues of refunding securities at lower interest rates. Approximately \$1,100,000,000 of new stocks and bonds of railways in the United States were disposed of. Of this amount about \$350,000,000 represented refunding issues. The largest sales of bonds were \$82,000,000 of 4 per cent., convertible bonds of the Southern Pacific, \$75,000,000 of 4 per cent. bonds of the Chicago, Milwaukee and St. Paul and \$115,799,000 bonds of the Missouri Pacific, which were issued as part of a new financial organization for this important Gould property. The three largest railroad systems in the East, namely the Pennsylvania, New York Central and Hudson River and the New York, New Haven and Hartford issued large blocks of stock to stockholders at low prices, thereby obtaining necessary funds for improvements and at the same time effecting the payment of the equivalent to an extra dividend. The Pennsylvania sold \$80,000,000 of stock; the New York Central sold \$44,658,000 and the New York, New Haven and Hartford sold \$50,000,000.

Few significant changes were made in the dividend rates of standard railroad stocks during the year, although there were some notable instances of "melon-cutting." Neither the New York Central or the Pennsylvania, which reduced their annual dividend rates in 1908, increased them in 1909. The Pennsylvania Company and the P. C. C. and St. L., two of the most important subsidiary lines of the Pennsylvania Railroad, both announced increases of 1 per cent. in the rate in December. The only reduction of importance was that of the St. Louis, Iron Mountain and Southern, which dropped from 5 per cent. to 4 per cent. The rights to subscribe at low prices for such stocks as Pennsylvania, New York Central and New Haven constituted extra dividends of from 5 to 10 per cent. to the stockholders of those roads. The most striking example of "melon-cutting" was the 50 per cent. extra cash dividend and 15 per cent. stock dividend declared by the Delaware, Lackawanna and Western in addition to regular dividends of 20 per cent., making a total of 85 per cent. for the year. Increases were also made by all the other so-called "anthracite" roads.

CHANGES IN RAILWAY OWNERSHIPS. An un-



THE NEW YORK TERMINAL OF THE PENNSYLVANIA RAILROAD
McKIM, MEAD, AND WHITE, ARCHITECTS

usually large number of changes of ownership or control of important railway systems took place during the year. Edwin Hawley and his associates acquired the Chesapeake and Ohio, the Missouri, Kansas and Texas, and the St. Louis and San Francisco and the Hawley group now comprises more than 14,000 miles of road. One of the former Hawley roads, the Colorado and Southern, passed to the Chicago, Burlington and Quincy. The Rock Island-Frisco system was broken up by the sale by the Chicago, Rock Island and Pacific Railroad of its controlling interest in the St. Louis and San Francisco and its allied lines to B. F. Yoakum, Edwin Hawley and their associates. It was reported late in the year, following the dissolution of the Rock Island-Frisco combination, that the owners of Rock Island had secured control of the Lehigh Valley. The same reports coupled the Wabash Railroad with the deal for a through connection for the Rock Island from the Rocky Mountains to the Atlantic Coast. In the Middle West the Baltimore and Ohio completed negotiations for taking over the Cincinnati, Hamilton and Dayton from the present receiver. The Minneapolis, St. Paul and Sault St. Marie acquired the Wisconsin Central, thus giving the Canadian Pacific an entrance into Chicago. After overcoming many obstacles the New Haven finally gained control of the Boston and Maine through the formation of the Boston Railroad Holding Company which owns a controlling interest in the Boston and Maine and is in turn controlled through stock ownership by the New Haven. The death of E. H. Harriman (q. v.) did not affect in any way the corporate control of activities of the Harriman lines and their affiliated systems.

CONSTRUCTION OF NEW RAILROAD MILEAGE. The new railroad track built in 1909, while less than that of any year since 1898, with the exception of 1908, was widely scattered throughout the country and afforded encouraging evidence of a return to more normal conditions. Statistics compiled by the *Railroad Age Gazette* show that 3748 miles of new track were laid during the calendar year as compared with 3214 miles in 1908 and 5212 miles in 1907. Texas headed the list of States with 666.43 miles, built by 23 companies. The total main track mileage of the railways in the United States on June 30, 1909, as given in the annual report of the Interstate Commerce Commission was 233,003, as compared with 228,165 miles in 1908. The longest line built in 1909 was the extension of the Western Pacific on which track was laid for 430 miles, 288 miles in Nevada and 142 miles in California. In Canada the new trans-continental line of the Grand Trunk Pacific was extended westward 623 miles which swelled the total new construction for the northern half of the continent to 1488 miles. According to statistics compiled by the *Archiv für Eisenbahnwesen*, the railway mileage of the world at the end of 1907 was divided in the table below:

Since 1897 the world's railway mileage has

increased 140,137 miles or 23.5 per cent. The capital invested in the railways of to-day is approximately \$50,000,000,000.

ELECTRIFICATION. New York City was the centre of activity in the electrification of steam railways in 1909. The Long Island Railroad added 40 miles to its electric suburban zone in preparation for operating of all of its trains through the Pennsylvania tunnels under the East River to the new terminal station at Seventh Avenue and Thirty-third Street on the Island of Manhattan. The station and tunnels from the Hackensack meadows in New Jersey to Sunnyside yard in Long Island City were nearly completed by the end of the year, and it was expected that all trains of the Pennsylvania and Long Island Railroads would be running into the new station by June 1, 1910. Two of the electric locomotives which will haul through trains in the tunnels were received in October and subjected to service tests on Long Island. These are the most powerful electric locomotives ever built, each half unit being driven by a 2000 horse-power motor mounted above the frames and connected through cranks and connecting rods on each side to the two pairs of driving wheels. The New York Central made progress on the new Grand Central Station and electrically equipped its Harlem Division from the present terminal of the electric zone at Wakefield to North White Plains, 12 miles. Electric operation was begun on this section early in 1910. The New Haven made no extension of its electric zone beyond Stamford, but it ordered two electric freight locomotives of a novel type which will be tried out in service with a view of ultimately operating both freight and passenger trains by electric power. In the far west the Great Northern began operations of trains through the Cascade tunnel in the State of Washington with three-phase locomotives on July 10. The Illinois Central, after a study of the possibilities of operating at Chicago terminals by electricity, announced in October that it would defer action on the project indefinitely. See **ELECTRIC RAILWAYS.**

CAR AND LOCOMOTIVE BUILDING. The policy of strict economy in all departments inaugurated by the railroads in 1908 was reflected in the statistics of cars and locomotives built in 1909, compiled by the *Railroad Age Gazette*. The real recovery did not begin until after the crops began to move in the summer when orders for new motive power and rolling stock equipment were placed on a scale comparing favorably with the buying of more prosperous years. During 1909, 53 car building companies in the United States and Canada built 93,570 freight cars and 2849 passenger cars; a total of 96,419, as compared with 78,271 in 1908, and 289,645 in 1907. The total number of cars ordered during the year was 193,874, as compared with 63,988 in 1908, and 151,711 in 1907. The following table shows the total number of cars built in each year since 1904:

Europe	199,385
Asia	56,294
Africa	18,519
North America	268,058
South America	34,911
Australia	17,700
Total entire world.....	594,867

Year	Freight	Passenger	Total
1904.....	60,806	2,144	62,950
1905.....	165,455	2,551	168,006
1906.....	240,503	3,167	243,670
1907.....	284,188	5,457	289,645
1908.....	76,555	1,716	78,271
1909.....	93,570	2,849	96,419

Locomotive building followed closely along the same lines as car building. The number ordered in 1909 was 3350 as compared with 1182 in 1908, and 3482 in 1907. The number of locomotives built by 11 manufacturing companies in the United States and Canada, not including those built by railway companies in their own shops, is shown in the table below for each year from 1904 to 1909:

1904.....	3,441	1907.....	7,362
1905.....	5,491	1908.....	2,342
1906.....	6,952	1909.....	2,887

BLOCK SIGNALS. The mileage of railway track protected by some form of block signals at the end of 1909 was 63,324, an increase of 3775 miles during the year. Automatic block signals were installed on 2228 miles of track, and manual block signals on 1558 miles.

RAILWAY ACCIDENTS. The accompanying table compiled from the reports of the Interstate Commerce Commission shows the number of passengers and employees killed and injured on railways in the United States for the years ending June 30, 1908-9. The number of casualties in 1908-9 showed a marked falling off from the low figures of the previous year, due perhaps in part to the decrease in the volume of traffic handled. The number killed dropped from 3764 to 2791, a decrease of 26 per cent. A marked reduction during the year in the number of fatal and non-fatal accidents to trainmen in coupling cars is evidence of the greater care taken by the railways in keeping the couplers in good repair and perfect operative condition. The annual report of the Commission to Congress states that "inspectors of the Commission have gone over the equipment of our large railway systems without finding any defective couplers." The Interstate Commerce Commission, State Railroad Commissions and the railway companies have been making earnest but as yet ineffectual efforts to reduce the enormous annual loss of life to "other persons," which includes grade crossing accidents and injuries to trespassers in the railway right-of-way. In the year ending June 30, 1908, 6402 persons were killed and 10,187 injured in accidents classified under this head. The deaths in 1907 were 6695 and the injuries 10,331.

	1909		1908	
Passengers	Killed	Injured	Killed	Injured
In train accidents.....	131	3,865	165	7,430
Other causes.....	204	6,251	241	5,215
Total	335	10,116	406	12,645
Employees				
In train accidents.....	520	4,877	642	6,818
In coupling accidents, 161		2,353	239	3,121
Overhead obstructions, etc.	76	1,229	110	1,353
Falling from cars, etc. 481		10,259	669	11,735
Other causes.....	1,218	33,086	1,699	33,317
Total	2,456	51,804	3,359	56,344
Total passengers and employees	2,791	61,920	3,765	68,989

RAINES, JOHN. An American politician, died December 16, 1909. He was born at Geneva, N. Y., in 1840, and was educated in the common schools of that city. He graduated from the Albany Law School in 1861. For a short time he taught and then took up

the practice of law in his native town, later removing to the town of Canandaigua. He early became interested in politics, and joining the Republican party threw himself with enthusiasm into the campaigns that followed the war. He was elected a member of the State Assembly in 1881, 1882 and 1885. In 1886 he was elected State Senator and remained a member of the upper house in the State Legislature until 1890. In 1894 he was again elected to the Senate to fill a vacancy and was reelected the following year. He served in the State Senate until the time of his death. In 1903 he was elected President *pro tempore* of the Senate, an office which carried with it the Republican leadership. He served in this capacity in every term thereafter. He served as a member of Congress in the Fifty-first and Fifty-second Congresses. Senator Raines was the originator of the famous Raines law which regulates the selling of liquor in the State. He was one of the most skillful politicians in the State. He supported Senator Platt as Republican leader of the State until the latter broke with Governor Odell and was obliged to resign the leadership. He was a supporter of Governor Odell, and after the election of Governor Hughes became a leader of the party organization in the State and the strongest opponent of many of the measures advocated by Governor Hughes. He formed an alliance with Senators McCarren and Grady, Democrats, by which he prevented the removal on charges of Otto Kelsey, Superintendent of Insurance, which had been recommended by Governor Hughes to the Senate. He also rigorously opposed the public service bill which was, however, passed in spite of his opposition. At the legislative session of 1909 he strongly opposed the direct primaries plan of Governor Hughes and nearly all other reforms which that official recommended, and by combining with the Democrats under Grady and McCarren, he was able to prevent the passage of these measures.

RAUM, GREEN BERRY. An American soldier and public official, died December 18, 1909. He was born at Golconda, Ill., in 1829, and was admitted to the bar of Illinois in 1853. He was a member of the National Democratic Convention which supported Douglass for President in 1860. In 1861 he entered the Union army as leader of the Forty-sixth Illinois Volunteers, and was promoted through successive grades to be brigadier-general. He served under Grant and Sherman and was severely wounded at Missionary Ridge. He did important service in the Atlanta campaign, and the campaign following the March to the Sea. From 1876 to 1883 he served in Congress, and from 1889 to 1893 he was Commissioner of Pensions. He was the author of many magazine articles and two books, *The Existing Conflict* and *The History of Illinois Republicanism*.

RECALL. See ELECTORAL REFORM.

RECLAMATION SERVICE. See LANDS, PUBLIC, AND IRRIGATION.

RED CLOUD. A chief of the Sioux tribe of Indians, died December 10, 1909. He was born about ninety years ago and was the last of a long line of famous chiefs who were heads of the Sioux nation, which once comprised more than 20,000 persons. He first came into prominence as the leader in the Fetterman massacre in Wyoming, which occurred near Ft. Keard-

on December 22, 1866, when about 2000 Indians under the command of Red Cloud surrounded 100 men commanded by Captain Fetterman and killed every one. The massacre made Red Cloud famous among his own people, and he was made leader of the Sioux warriors by common consent. In a short time he had established a military dictatorship and became a terror to the whites in the region where he ruled. Following a council in 1874, the Indians left the North Platte country and went to the Red Cloud agency, where they continued, under Red Cloud, to make frequent raids. The capture of his ponies by General Crook prevented his taking part in the Indian war of which the Custer massacre was a part. About thirty years ago he signed a peace treaty, and at the time of the battle of Wounded Knee in 1890 he was one of the supposed friendly Indians at the Pine Ridge agency. When news of the battle arrived many of the Indians, including Red Cloud, stampeded to the hills. The band attacked the Drexel Mission and almost ambushed Colonel Forsythe before the Ninth Cavalry came to his rescue. It was claimed by army officers that Red Cloud had charge of these operations, which showed wonderful strategic skill. After the close of the campaign against Sitting Bull General Crook formally deposed Red Cloud from the chieftainship of the Sioux, and he was kept at the Pine Ridge agency. He fought civilization almost to the last and declined his allotment of land, saying that he would starve before he would work like a squaw, and he was so bitter against the whites that he refused to learn a word of English. In 1905, however, he was persuaded to abandon in a measure his hostile attitude and went to work.

RED CROSS, THE AMERICAN NATIONAL. The American Association of the Red Cross was founded in 1882 under the leadership of Miss Clara Barton. This was a voluntary reserve emergency organization and was practically a private society. It continued in this form until 1904, when it was reorganized and reincorporated by an act of Congress January 5, 1905. By this act it was transformed into an organization of national scope on an equality with European Red Cross associations. It has affiliation with the government, which assures harmony and coöperation between the two. William H. Taft was its president in 1908, and continued in this capacity after his election to the Presidency. The chairman and five members of the Central Committee are appointed by the President of the United States and represent the Federal departments of State, Treasury, Army, Navy and Justice. There is also a Board of Consultation, which includes the Surgeon-Generals of the Army, the Navy and the Public Health and Marine Hospital Service. Other government officials and ex-officials are also members of the Red Cross. In the United States there are more than thirty State branches and there are branches also in Porto Rico and Hawaii. From the time of its reincorporation in 1905 the Red Cross has rendered assistance to sufferers from the Philippine typhoon, Japanese famine, the eruption of Vesuvius, the Italian earthquake, Gulf storm, Chinese famine, Russian famine, Mississippi cyclone and Southern floods, the Monongah mine disaster, the Chelsea fire, Michigan forest fires and Canadian forest fires. The principal activities during 1909 were in aid of sufferers from the Italian

earthquake, Mexican floods, the Armenian massacres and the Key West cyclone. For the Italian earthquake relief fund the Red Cross received contributions aggregating over \$1,000,000. There was expended \$29,500 by the American Red Cross for relief work in Armenia; about \$8000 and a large amount of clothing and supplies for sufferers in Mexico; \$1000 for sufferers in Key West. The officers in 1909 were: President, William H. Taft; Vice-President, Robert W. de Forest; Treasurer, Charles D. Morton; Counselor, Lloyd W. Bowers; Secretary, Charles L. Magee; National Director, Ernest P. Bicknell; Chairman of the Central Committee, Major-General George W. Davis, U. S. A., retired.

REFERENDUM. See ELECTORAL REFORM.

REFORM BUREAU, INTERNATIONAL. An organization for general and specific betterment of mankind, inaugurated by Rev. Wilbur F. Crafts, Ph. D., in a course of lectures on Sociology at Princeton University. The Bureau was incorporated at Washington in 1896. The special evils which the Bureau was formed to combat are intemperance, impurity, Sabbath breaking and gambling. Its methods are by legislation, by letters, by lectures and by literature. It has four fields of work, local, State, national and international. Its specialties at the present time in its local work are the investigation of low class theatres, efforts to suppress sensational and obscene literature, and the general enforcement of the Sabbath law. In the State work the Bureau gives special attention to the race track gambling trust. In its national work it has drafted twelve laws which have passed Congress. Among these are laws which prevent the selling of liquor to immigrants at immigrant stations; legislation closing the liquor bars in the House and Senate basements; laws prohibiting the sale of liquor, opium and fire-arms by American traders in the islands of the Pacific having no civilized government; and the Gillett divorce reform act, which broke up the "divorce colonies" in the Territories. Important work in the international field has been carried on in relation to measures to restrict liquor selling in Africa, and against the sale and use of opium in China and elsewhere. Among the bills presented by the Bureau in Congress in 1908-9 was the bill to forbid liquor selling in all soldiers' homes, and in ships, buildings and premises used by the United States government; a bill to protect no-license territory against "original packages"; a bill to prohibit opium traffic in all territories under United States jurisdiction; a District of Columbia Sunday law; a national anti-gambling law; a national interstate anti-cigarette law; an anti-polygamy amendment to the constitution; a bill to forfeit a periodical's second class mail privileges when once ruled out as immoral; a bill to suppress liquor selling in all the "Indian country" of Alaska; a bill to prohibit the issuing of money orders or the registering of letters on Sunday; a uniform marriage and divorce law by an amendment to the United States Constitution, and child labor laws, restricting the age of children working in mills, mines and stores. The most important event in the history of the Bureau during 1909 was the sending of Rev. E. W. Thwing to China and Japan as Oriental Secretary to assist in the anti-opium fight which China is making.

Dr. Crafts visited England during the year as official delegate of the United States to the twelfth International Congress on Alcoholism. As chairman of the United States delegates, he prepared an important report. The Bureau took part, through its Superintendent, in local option fights in Canada and some States of the United States. The Bureau took an important part in the opposition of bills in the New York Legislature for weakening the Sunday laws. In April a harmony banquet was held, at which the leaders of many reform movements were brought together for fellowship and co-operation. On December 12-17 a conference of all the national temperance societies of the United States was held. The Bureau occupies a building of its own in Washington. The officers of the Bureau in 1909 were: President of the Board of Trustees, Henry W. Blair; Secretary, Rev. F. D. Power, D. D.; Superintendent and Treasurer, Rev. Wilbur F. Crafts, Ph. D.

REFORMED CHURCH IN AMERICA (DUTCH). A Protestant religious denomination, composed originally of settlers from Holland and largely intermixed with elements from many other sources. Up to 1807 it was known as the Reformed Protestant Dutch Church in North America. The first church organization was established in 1628. The total enrollment in the Church in 1909 was 116,174. There were 684 churches and 727 ministers. The families in the denomination numbered 63,364. The number of Sunday schools was 777, with a total enrollment of 118,513. The contributions received during the year for denominational objects was \$355,945 and for other objects \$93,371. For congregational purposes there were received \$1,506,331, making a total of all contributions of \$1,955,647. The church is active in foreign missions, sustaining missionaries in China, India, Japan and Arabia. The Church Building Fund has charge of the aid for the erection of the new churches. Other funds of the church are the Disabled Ministers' Fund and the Widows' Fund. Under the denominational auspices are three theological seminaries: The New Brunswick Seminary at New Brunswick, N. J.; the Western Seminary at Holland, Mich., and the Arcot Theological Seminary at Palmenor, India. Two colleges, Rutgers College, at New Brunswick, N. J., and Hope College at Holland, Mich., are controlled by the denomination. The official organs of the denomination are the *Christian Intelligencer*, published in New York City, and *The Leader*, published at Holland, Mich. There are besides many missionary and departmental publications. The church has a Board of Education which furnishes aid to educational institutions and to young men studying for the ministry. The headquarters of the denomination are 25 East Twenty-second street, New York City.

REFORMED CHURCH IN THE UNITED STATES (GERMAN). A Protestant religious denomination, founded by immigrants from the Palatinate and other districts of Germany. The denomination was established in the United States at Germantown, Pa., in 1714. In 1793 it became independent, having previously been under the supervision of the church in Holland. The church in 1909 numbered 389,328 communicants, 1753 churches and 1179 ministers. There are eight district synods and 59 classes corresponding to the presbyteries in Presbyter-

ian bodies. There were 1716 Sunday schools, with 232,746 scholars and 25,333 teachers. The denomination carries on home mission work, and its fields cover practically the entire United States and a portion of Canada. There are 189 missions, of which 71 are under the two German boards, the Eastern and the Western, and the remaining 118 are under the General Board. The home mission work consists of the support of the missionaries and church building. Missions are maintained among the Hungarians and Bohemians. Foreign mission work is also carried on in Japan and China. Under the control of the church are the Eastern Theological Seminary at Lancaster, Pa.; the Central Theological Seminary of the Reformed Church in the United States at Dayton, O., and a mission house for training German missionaries at Sheboygan, Wis. Franklin and Marshall College at Lancaster, Pa., is the leading collegiate institution under the denominational auspices. Other colleges are Heidelberg College at Tiffin, O., and Ursinus College at Collegeville, Pa. Colleges for women are maintained at Frederick, Ind., and Allentown, Pa. The annual session of the Eastern Synod was held October 20, 1909, in the First Reformed Church at Easton, Pa.

REFORMED CHURCHES THROUGHOUT THE WORLD HOLDING THE PRESBYTERIAN SYSTEM, THE ALLIANCE OF. An organization formed in London in 1875. The churches connected with the Alliance number more than ninety and are located in all of the five continents. The adherents of the Presbyterian and Reformed Churches of the world number about 25,000,000. The Alliance includes in the United States the Presbyterian Church of the United States of America, the Presbyterian Church in the United States, the United Presbyterian Church of North America, the Reformed (Dutch) Church in America, the Christian Reformed Church in North America, the Reformed (German) Church in the United States, the Reformed Presbyterian Church Synod, the Associate Reformed Synod of the South, the Reformed Presbyterian Church, General Synod, the Welsh Calvinistic or Presbyterian Church in the United States of America. The communicants of the various churches in the United States numbered in 1909 2,238,880. The officers of the Alliance in the United States are: President, Rev. David J. Burrell; General Secretary, Rev. G. D. Matthews; American Secretary, Rev. W. H. Roberts.

REFORMED EPISCOPAL CHURCH. An Episcopal Church of historic orders organized in New York in 1873 by members of the Protestant Episcopal Church who were opposed to the growth of sacramentarianism and sacerdotalism in that church, and who made the separation in order that they might continue to worship after the historic orders of the English Reformation and in order to provide a place for any others who might desire to have membership in a church, evangelical in its teaching, liturgical in its worship, episcopal in its government and dignified and conservative in its methods. In 1909 the church numbered 9419 communicants, 74 churches and 82 ministers. There were eight bishops, seven of whom presided over synods and missionary jurisdiction in the United States and Canada and one in British Columbia. The nineteenth annual

council was held in St. Paul's Church, Philadelphia, in May, 1909. The church conducts large missionary work, including between thirty and forty churches among the colored freedmen of the South. Foreign missions are carried on in India. The theological seminary of the denomination is in Philadelphia. The official organs are *The Episcopal Recorder*, published in Philadelphia, and *The Evangelical Episcopalian*, published in Chicago.

REFORMED PRESBYTERIANS. The general name of several religious bodies of Presbyterian doctrine, founded by members of the Covenanting or Reformed Presbyterian Church of Scotland. They include the Synod of the Reformed Presbyterian Church of North America, which has about 900 communicants; the Reformed Presbyterian Church in North America, General Synod, which in 1909 had about 3500 members, 19 churches and 19 ministers, and the Reformed Presbyterian Church in the United States and Canada, which has a membership of about 450, and the Reformed Presbyterian Church, Covenanted, which had in 1906, according to the reports of the United States census, a membership of 17. The General Synod maintains a theological seminary at Philadelphia. It held its annual meeting in Philadelphia on May 19, 1909. The next annual meeting will be held in Cincinnati on the third Wednesday of May, 1910.

REID, SIR JOHN WATT. An English physician, died February 25, 1909. He was born in 1823 at Edinburgh and was educated at Edinburgh University. He entered the Royal Navy in 1845 as surgeon. From 1880 to 1888 he was medical director-general. At the latter date he retired from active service. In 1881 he was appointed honorary physician to Queen Victoria. He served in the Russian War in the Black Sea, 1854-56; in the China War, 1857-59, and in the Ashanti campaign in 1874.

RE-INFORCED CONCRETE. See CONCRETE.

REMINGTON, FREDERIC. An American artist, died December 26, 1909. He was born at Canton, St. Lawrence county, New York, in 1861. At the age of 18 he began a course at the Yale Art School, but the death of his father interrupted his art studies, and he returned to his home and worked as clerk in a country store, afterwards acting as confidential clerk to Governor Cornell. After having received a share of his father's estate he went West, and for four years led the life of a cowboy. He established a sheep ranch and afterwards went to Kansas, and spent the next few years in wandering about the Southwest, serving as a scout and a ranchman. He traveled through the interior of the country from Mexico to Hudson Bay. During this time he was developing his ability as an artist, especially in the sketching of animals and Indians. He obtained a commission from the editor of the *Century Magazine* to make drawings of Indians, together with a series of sketches. He also illustrated editions of *Lawatha* and *The Oregon Trail* and other tales dealing chiefly with Western life. He came to be recognized for his knowledge of the life of the Great West, of the Indian and the fur trader, and the United States soldier of those days, all before he was thirty years of age. He then turned to more serious work in oils, which he made rapid development. The

brilliance of his color sense was particularly remarkable. He exhibited at the Paris Exhibition a large canvas entitled, "The Last Stand," and in 1892 showed in New York an exhibition of a hundred works in oil and water color, and pen and ink and pencil. He had in the meantime made a trip to Europe, and he exhibited also some of the results of his work there, among these "A German Infantry Officer" and "An Old Trooper." He also visited Russia, but was obliged to leave that country. In 1894 he practically ceased making paintings and sketches of the West, declaring that the romantic aspects of that part of the country had vanished. In 1895 he published many of his stories and sketches under the title *Pony Tracks*. He wrote also two other books of sketches entitled *Crooked Trails* and *Frontier Sketches*, and a novel, *John Ermine of the Yellowstone*. In the last years of his life he turned to sculpture, in this as in his illustrations and paintings and writings giving himself to the expression of action. Two of his sculptures, "The Broncho Buster" and "The Wounded Bunkie," attracted particular attention.

REPUBLICS, AMERICAN, INTERNATIONAL BUREAU OF. An official institution under the support of the republics of North, South and Central America, devoted to the encouragement of Pan-American commerce, friendship and peace. It was established in 1890 in accordance with the resolutions passed at the first International Conference of American Republics, held in Washington in 1889-90. It was continued by resolutions at other conferences in 1901 and 1906. The real purpose of the Bureau is to develop commerce and trade, to promote better political relations, closer acquaintance and more intimate association among the American republics. In order to bring about these results the Bureau keeps in close touch with the commercial affairs of the republics and publishes numerous handbooks, pamphlets and maps relating to them, as well as a monthly bulletin. The work of the Bureau has expanded greatly in the last two or three years, largely as a result of the visit of Secretary Root to the countries of South America and Mexico in 1906 and 1907. A gift of \$750,000 from Mr. Andrew Carnegie, together with additional sums from the governments of the various republics, enabled the Bureau to construct a handsome building for its uses. In April, 1909, the president of the Bureau, Mr. John Barrett, gave a dinner in honor of Secretary Knox, as the new chairman of the governing board of the Pan-American Bureau, and also in honor of the representatives in Washington and of the republics participating in that undertaking. Secretary Knox made an important address, in which he placed himself upon record in the administration as continuing the policies of Secretary Root in relation to the Western Hemisphere. Señor Joaquim Nabuco, the Brazilian Ambassador, replied in behalf of the American republics and cordially reciprocated the sentiments of Secretary Knox. Other speakers were Vice-President Sherman, Speaker Cannon and Senator Root. The director of the Bureau was John Barrett, and the secretary, Francesco J. Yánes.

RESERVOIRS. See DAMS; IRRIGATION.

RÉUNION, or BOURBON. An island in the

Indian Ocean about 420 miles east of Madagascar; a French colony. Area, 965 square miles; population (1907), 177,677 (including 6514 British Indians, 1941 natives of Madagascar, 3237 Africans, 810 Chinese, 377 Arabians). The towns are under French municipal law. St. Denis, the capital, had (1907) 25,689 inhabitants; St. Pierre, 31,927; St. Paul, 20,091; St. Louis, 12,846. There were (1907) 163 schools, with 366 teachers and 13,524 pupils. The products are sugar, rum, coffee, tapioca, vanilla, spices. The live-stock in 1898 numbered 2345 horses, 2950 mules, 3495 oxen, 13,750 sheep and goats. Imports (1907) were valued at 14,490,988 francs, chiefly rice and grain; exports, 13,976,891 francs (sugar, 9,386,432 francs). Of rum 2,497,959 litres were exported; coffee, 40,805 kilos; tapioca, 2,420,447 kilos; vanilla, 37,970 kilos. Imports and exports to the value of 12,562,010 and 13,535,377 francs respectively came from and were sent to France and French colonies. There were in 1908 seventy-eight miles of railway. The Tamatave-Réunion-Mauritius telegraph cable was opened October 13, 1906. Revenue and expenses (local budget, 1909) balanced at 4,508,450 francs; expenditure of France (1909), including a subvention of 2,215,000 francs for railway and harbor, 2,388,480 francs. The colony as such has no debt. The debt of the eighteen communes, incurred for public works, amounted, January, 1907, to 8,990,981 francs. The Bank of Réunion is capitalized at 3,000,000 francs and has a reserve fund of 1,015,234. The colony is administered by a governor, assisted by a privy council and an elective council general, and is represented in French Parliament by one senator and two deputies. St. Paul and Amsterdam, small islands in the Indian Ocean, and Kerguelen, a desolate island about 50 S. lat. and 70 E. long., belong to France.

REYER, ERNEST. A French composer, died on January 15, 1909. He was born at Toulon, December 1, 1823. His first opera, *Maitre Wolf-ram*, was produced in 1854. In 1861 appeared *La Statue*, a grand opera in three acts, and in 1877 *Sigurd*. Reyser composed but one more opera, *Salammbô*, which was produced with success in Paris in 1890.

REYES, RAFAEL. A Colombian soldier and public official, until July 26, 1909, president of the Republic of Colombia. He was born in 1852 at Santa Rosa de Viterbo, Boyaca, Colombia. From early manhood he was identified with the politics of his country, but he gained distinction also as an explorer, having traveled 25,000 miles from Panama to Patagonia through heretofore unvisited territory. In 1885 he supported the government against the revolutionists, and at the beginning of the revolution of 1895, as the head of the national army, he suppressed the insurrection. In 1891 he represented Colombia at the Pan-American Congress. He was elected President in 1904. His advocacy of the separation of church and state, and of the abolition of capital punishment made him unpopular with many prominent politicians. In 1906 an attempt was made on his life. His administration was progressive and enlightened, for he was a man of wide culture and attainments. In May, 1909, he left Colombia and this was taken as foreshadowing his resignation, which was sent to the Colombian Senate from Hamburg. See COLOMBIA.

RHODE ISLAND. One of the North Atlantic States of the United States. Its area is 1248 square miles. The population in 1909, according to a Federal estimate made in that year, was 521,302.

MINERAL PRODUCTION. The mineral resources of the State are not large and consist chiefly of stone and its products. The value of the stone product in 1908 was \$556,474, which was almost entirely granite. The value of the granite produced in 1907 was \$674,148. There were produced in 1908 594,208 gallons of mineral water valued at \$39,405, as compared with a product of 245,307 gallons, valued at \$17,108, in 1907. Among other mineral products produced in small quantities are coal products, graphite and talc. The value of the mineral products of the State in the year 1908 was \$708,694, as compared with \$937,384, the value of the products in 1907.

AGRICULTURE AND STOCK RAISING. The area devoted to agriculture in Rhode Island is comparatively small. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 365,000 bushels, valued at \$354,000, from 11,000 acres; oats, 50,000 bushels, valued at \$28,000, from 2000 acres; potatoes, 750,000 bushels, valued at \$600,000, from 6000 acres; hay, 68,000 tons, valued at \$1,265,000, from 62,000 acres. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 14,000; dairy cows, 26,000; other cattle, 10,000; sheep, 9000; swine, 13,000. The wool clipped in the State in 1909 was estimated at 34,560 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$1,685,680. The most important of these products in point of value was oysters, of which 1,228,900 bushels, valued at \$969,490, were taken. In addition to these 719,934 bushels, valued at \$584,298, were taken up by Connecticut oystermen. Next in point of value were lobsters, of which 1,424,500 pounds, valued at \$152,460, were taken. Following in the order of rank of the value of the production were scup, \$123,110; butterfish, \$40,100; cod, \$40,700; hard clams, \$39,140; soft clams, \$37,710. Other fish taken in considerable quantities were haddock, mackerel, swordfish and sea bass. There were 565 independent fishermen engaged in the fisheries of the State and 895 wage-earning fishermen employed. The number of vessels engaged was 131, valued at \$406,205.

EDUCATION. The school attendance for 1908, the latest year for which figures are available, was 94,875. The teachers employed numbered 2260, of whom 194 were men and 2066 women. The average annual salary of the teachers was \$630.98. The total expenditure for education in that year was \$2,646,940, of which the State expended \$506,422, and cities and towns \$2,140,517. There have been no radical changes in school policy and administration in recent years, but several new measures in law and practice have been put in force. Among these are the minimum salary law, requiring that every teacher in the State shall receive at least \$400 as annual salary. Another important measure is that enforcing compulsory secondary education, which means that every municipality must furnish free high school education. The

State pension system for retiring teachers has been put in force. This is supported exclusively by State appropriations. State certification of school superintendents to secure competent qualifications is required. There were in 1908 sixty pensions in force in accordance with the above mentioned measure. The highest pension in force was \$500 and the lowest \$150. The average pension was \$320.48. The complete amount of yearly pensions in force was \$19,228.80.

POLITICS AND GOVERNMENT. The Democratic State Convention for the nomination of State officers convened in Providence October 7. Olney Arnold, of Providence, was nominated for Governor, Thomas A. Carroll, Providence, for Lieutenant-Governor. Mr. Arnold was the leader of the Democratic forces in 1908, but was defeated with the rest of the ticket. The Republican State Convention was held in Providence October 13. Aram J. Pothier, of Woonsocket, was renominated for Governor, Zenas W. Bliss, of Cranston, was nominated for Lieutenant-Governor. The Prohibition party on September 6 nominated Willis H. White, of Providence, for Governor, and N. C. Green, of Warwick, Lieutenant-Governor. The principal issues of the campaign were three proposed amendments to the State constitution. These were passed by two legislatures and were submitted to the people. A three-fifths vote of the entire voting population was necessary. One amendment provided for redistricting the State so that the House of Representatives might have 100 members instead of 72. The second amendment provided that the Lieutenant-Governor shall preside over the Senate, and the third gave to the Governor the veto power. The Democrats opposed the first two, and the Republicans wished to pass all three amendments or none. The result of the election of November 3 was a Republican landslide. Though 1908 was the Presidential year and the vote was several thousands heavier than in 1909, the pluralities of the Republicans in the latter year were thousands greater than in 1908. Governor Pothier's plurality was the greatest ever given to a Governor of Rhode Island, or 11,769. The entire State ticket had pluralities above 11,000. The necessary three-fifths vote was cast for all three constitutional amendments, and as a consequence the Governor now for the first time has the veto power. The General Assembly, as was the case last year, is overwhelmingly Republican.

LEGISLATION. Among the measures enacted at the legislative session of 1909 are those noted below. Measures were passed limiting the hours of labor for women and children in manufacturing and mechanical establishments to fifty-six hours in any one week. Provision was made for commissioners on uniformity of legislation and conservation of natural resources. A survey of the natural resources of the State is authorized. Measures were enacted undertaking to prevent hazing, and the proposed amendment to the constitution, giving to the Governor the power to veto, was enacted.

OFFICERS: Governor, Aram J. Pothier, Rep.; Lieutenant-Governor, Zenas W. Bliss, Rep.; Secretary of State, J. Frederick Parker; Attorney-General, William B. Greenough; Treasurer, Walter A. Read; Adjutant-General, Frederick Sackett; Auditor, Charles C. Gray; Commissioner of Public Schools, Walter E. Ranger;

Commissioner of Insurance, Charles C. Gray—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Edward C. Dubois; Associate Justices, Clark H. Johnson, C. Frank Parkhurst, John T. Blodgett, William H. Sweetland. Clerk of the Court, B. S. Blaisdell—all Republicans.

The State Legislature of 1909 was composed of 31 Republicans and 6 Democrats in the Senate, and 64 Republicans and 6 Democrats in the House. The State representatives in Congress will be found in the section *Congress of the article UNITED STATES.*

RHODESIA. An inland South African territory under British protection. The Zambesi River makes the natural division into Northern and Southern Rhodesia, and the entire territory is administered by the British South Africa Company.

SOUTHERN RHODESIA includes the two provinces of Matabeleland (capital, Bulawayo) and Mashonaland (capital, Salisbury), with a total area of 143,830 square miles; European population (1907), 14,018; native, 662,786. Bulawayo had (1907) 3491 white inhabitants; Salisbury, 1684. Cereals, vegetables and European fruits are grown, and tobacco, rubber, cotton, etc., are indigenous. Extensive mineral deposits are found, and several mining companies have been formed. The gold output to the end of 1908 was valued at £13,762,954; the output for the year 1908 at £2,526,007, an increase of £347,121 over the returns for 1907; the output for the first nine months of 1909 at £1,931,431. Silver, copper, coal, diamonds, lead, chrome, iron, asbestos and other minerals exist in considerable quantities. Tin is found, associated with iron and copper, on what experts declare to be the site of an ancient tin working. The imports and exports in 1907 were valued at £1,450,174 and £2,319,250 (gold at £2,132,746; gold concentrates, etc., £83,101; hides and skins, £10,632). Bulawayo is the commercial centre. Southern Rhodesia is a member of the South African Customs Union. There are over 2000 miles of railway in operation. The principal lines are the Mashonaland and the Rhodesia Railways, the former running from Salisbury east to Umtali (158 miles), and thence to Biera (Portuguese); the latter from Vryburg to Bulawayo (588 miles) is a continuation of the Cape Town (Cape-to-Cairo) line (distance from Cape Town to Bulawayo, 1362 miles). The line connecting Salisbury with Bulawayo is 300 miles. The section from Bulawayo through the Wankie coal fields to Victoria Falls (281 miles) has been extended to Broken Hill in Northwestern Rhodesia (374 miles from the Falls), and was to be completed to the Congo border (132 miles) by the beginning of 1910. (See CAPE-TO-CAIRO RAILWAY.) A light railway from Salisbury to the Ayrshire Mine (84 miles), with a branch (12 miles) to the Eldorado Mine, has been completed. A line connects Gwelo with Selukwe (about 23 miles); a line runs from Bulawayo to West Nicholson (119 miles), with a branch to the Matopos (9 miles), where Cecil Rhodes is buried. There are about 3000 miles of highways; 4018 miles of telegraph lines; 98 telegraph offices; 70 post-offices. An extensive telephone system is in operation. The revenue and expenditure in 1907 and 1908 amounted to £554,029 and £543,597 respectively. Southern Rhodesia is administered by the Company through an Administrator (1909, Sir W. H. Milton),

aided by an executive council. The Legislative Council has 14 members, seven appointed and seven elected by popular vote.

NORTHERN RHODESIA is divided into North-eastern Rhodesia (area, 109,000 square miles; population, 1907, 250 Europeans and about 398,000 natives) and Northwestern Rhodesia, or Barotseland (area, 182,000 square miles; population, 700 Europeans and 350,000 natives). The Administrator of Northeastern Rhodesia (1909) was Judge Leicester P. Beaufort (acting), with headquarters at Fort Jameson. The Administrator of Northwestern Rhodesia, or Barotseland, was (1909) L. A. Wallace (acting), with headquarters at Livingstone. Lealui is the chief kraal of Lewanika, the native King. The imports and exports (1907) of Northwestern Rhodesia amounted to £106,949 and £89,200 respectively.

RICE. The rice crop of the United States in 1909, according to statistics published by the United States Department of Agriculture, amounted to 24,368,000 bushels, grown on 720,225 acres, the average yield per acre being 33.8 bushels. The average price per bushel December 1 was 79.4 cents, and on this basis the crop represents a value of \$19,341,000. The average yield of rice by States was as follows: Louisiana produced 12,675,000 bushels on 375,000 acres; Texas, 9,894,000 bushels, on 291,000 acres; Arkansas, 1,120,000 bushels on 28,600 acres; South Carolina 476,000 bushels on 18,600 acres; Georgia, 100,000 bushels on 4200 acres; Alabama, 35,000 bushels on 1000 acres; Mississippi, 30,000 bushels on 1000 acres; Florida, 25,000 bushels on 1000 acres; and North Carolina, 13,000 bushels on 425 acres. The average yield per acre ranged from 23.9 bushels in Georgia to 40 bushels in Arkansas. Louisiana yielded 33.8 bushels and Texas 34 bushels per acre. The value of the crop in Louisiana amounted to \$10,013,000 and in Texas to \$7,717,000. While the rice crop was good, the prices shortly after harvest were from 75 to 80 cents per barrel lower than they were last year during the same period. During the eleven months ending with November, 1909, rice and rice flour to the amount of \$4,100,000 were imported. This amount was smaller by \$400,000 than the importations for the same period of 1908. The interests of the rice industry of the country are furthered mainly by the Rice Association of America, by some experiment stations, in particular by the Louisiana Rice Experiment Station, established during the past year, and by the Department of Agriculture.

RICHARDS, JOHN KELVEY. An American jurist, died March 1, 1909. He was born at Ironton, O., in 1856, and graduated from Swarthmore College in 1875. He was admitted to the bar, and from 1880 to 1882 was Prosecuting Attorney of Lawrence county, O.; from 1885 to 1889 City Solicitor of Ironton; from 1890 to 1892 State Senator; from 1892 to 1896 Attorney-General of Ohio. From 1897 to 1903 he was Solicitor-General of the United States, and in the latter year was appointed Judge of the United States Circuit Court, Sixth District. Judge Richards was a member of many important commissions, and as Solicitor-General argued successfully many important cases, including the Anti-Trust, Federal Legacy Tax, and several famous insular cases.

RICHARDSON, HENRY BROWN. An Ameri-

can engineer, died August 21, 1909. He was born in Winthrop, Maine, in 1837, and was educated in public and private schools in Portland. He was engaged as civil engineer in 1857 and 1859. He served throughout the Civil War in the Confederate army, chiefly in engineering capacities. From 1877 to 1904 he was a member of the Louisiana Board of State Engineers, and from 1880 to 1904 was chief engineer of the State. He was appointed by President Roosevelt a member of the United States Mississippi River Commission, which has charge of improvements in the channel of the Mississippi River.

RICHMOND, CHARLES ALEXANDER. An American clergyman and educator, inaugurated in June, 1909, president of Union College. He was born in New York City in 1863, and graduated from Princeton University in 1883, and from the Princeton Theological Seminary in 1888. After two years spent in teaching he became a pastor of the Presbyterian Church in East Aurora, N. Y. He remained here until 1894, when he was called to the Madison Avenue Presbyterian Church in Albany, N. Y. He continued in this pastorate until he was chosen president of Union College in 1908.

RIGG, JAMES HARRISON. An English Wesleyan clergyman, died in April, 1909. He was born in 1821, and was educated at Old Kingswood School. He entered the Wesleyan ministry in 1845. He was twice president of the Wesleyan Conference; an original member of the London School Board, and principal of Westminster Training College, 1868-1903. His writings were numerous, including *Principles of Wesleyan Methodism* (1850); *Modern Anglican Theology* (1857); *Discourses and Addresses* (1880); *Reminiscences of Sixty years Ago* (1904). Dr. Rigg was for fifteen years editor of the *London Quarterly Review*, and he contributed to many other periodicals.

RIPON, GEORGE FREDERICK SAMUEL ROBINSON, Marquis of, An English nobleman and public official, died July 9, 1909. He was born in London in 1827. In 1852 he became member of Parliament for Hull, and sat for various constituencies until 1859. In that year he was appointed Under Secretary for War, serving until 1861, when he became Under Secretary to India. In 1863 he was made Secretary of State for War and served until 1866. In the latter year he was appointed Secretary of State for India, and in 1868 was made Lord President of the Council, serving until 1873. He was appointed chairman of the joint commission for drawing up the Treaty of Washington in 1871, and in the same year became Grand Master of the Free Masons of England. From 1880 to 1884 he was Governor-General of India, and in 1886 First Lord of the Admiralty. He was Secretary for the Colonies from 1892 to 1893. In 1905 he was made Lord Privy Seal in the Campbell-Bannerman Cabinet. He became a Roman Catholic in 1874, and withdrew from the Cabinet in 1908 as the result of the government's opposition to the Eucharistic procession at the Church Congress in London.

RIVER IMPROVEMENT. See **WATERWAYS, INTERNAL.**

ROADS. See **PAVEMENTS AND ROADS.**

ROCHESTER, WILLIAM BEATTY. An American army officer, died November 11, 1909. He

was born at Angelica, N. Y., in 1826. In his early youth he was engaged in business, but upon the discovery of gold in California he went there by way of the Isthmus of Panama in 1850 and became the agent of the Wells Fargo Express Company at Sacramento in California. He returned to New York in 1860 and in the following year, on the outbreak of the Civil War, was appointed an additional paymaster for volunteers with the rank of major. He served until 1867, when he was transferred to the regular army as paymaster with the same rank. After serving in several stations until 1882 he became paymaster-general of the army with headquarters at Washington. He was retired from active service in 1890 having reached the age limit.

ROGERS, HENRY HUTTLESTON. An American financier, died May 19, 1909. He was born in Fairhaven, Mass., January 29, 1840. His formal education ended when he was 16 years of age, when he graduated from the Fairhaven High School. He began his business career by selling newspapers, but soon left this for a position in his father's grocery store, at a wage of three dollars a week. Here he remained for five years. For a short time he was employed on the Fairhaven branch railroad, but, having married, he went to the Pennsylvania oil wells, then recently discovered, in search of a fortune. He settled at McClintock's Wells, and for five or six years made a careful study of the oil business in all its branches. At the end of that time he was recommended to Charles Pratt of Brooklyn, who then practically controlled the retail oil trade of New York and vicinity, as a young man of ability and enterprise, and Mr. Rogers came to New York and was placed in charge of the further development of the business. He had previously made a business connection with the Pennsylvania Salt Co., which operated a large refinery on the Allegheny River. Mr. Rogers speedily became an important factor in the Pratt oil business, and when, in 1874, the union of the chief refineries in New York, Philadelphia, Pittsburg and Cleveland, which formed the Standard Oil Co., was made, Mr. Rogers and Mr. Pratt became trustees of the new company, and the relations then begun were maintained by the former until his death. He was one of the controlling forces of the great organization, for many years undoubtedly the greatest force. In the early '90's he was president of the corporation, but later resigned this office, and became one of its vice-presidents.

Mr. Rogers's ventures were not confined to the Standard Oil Co. and its allied interests. He invested heavily in mining companies, especially those mining copper. He came into control of the Amalgamated Copper Co., the Boston and Montana, and the Butte and Montana, which were consolidated in 1901, and Mr. Rogers became president and principal shareholder. The methods employed in this consolidation furnished much of the material for the famous "exposures" in "frenzied finance," made by T. W. Lawson. Another of Mr. Rogers's famous ventures was in the gas field in Boston. He bought control of the Brookline Gas Co. and built it into a powerful company about the time the lease of the Bay State Gas Co., controlled by J. Edward Addicks, expired. By lower bids the Brookline Gas Co. obtained the contracts for lighting the city. This precipitated

one of the most spectacular stock market wars in the financial history of the country, and resulted in the wrecking of the Bay State Gas Co. In 1894 Mr. Rogers was charged, in a suit brought by the receiver, with conspiring with a bank and a trust company to effect a fraudulent foreclosure for their personal profit, but the suit was dismissed. The last, and in many ways the most notable, of Mr. Rogers's great undertakings, was the building of the Tidewater Railway from Norfolk, Va., to Deepwater, W. Va., a distance of 442 miles. The road was built by Mr. Rogers entirely at his own expense, and it was finally opened the April before he died. It was said that in the panic of 1907, Mr. Rogers sacrificed many valuable securities in order that the completion of this road might not be delayed.

Mr. Rogers appeared many times as a witness in cases against the Standard Oil Co. His last appearance in this capacity was in the spring of 1909 in the case of the United States against the Standard Oil Co. for a dissolution of the "trust." At this time Mr. Rogers gave a detailed history of the methods of the company and its development from the time when he became prominent in the conduct of its affairs.

Mr. Rogers was probably less in the public eye than any other of the great financiers. He was an indefatigable worker, and this undoubtedly hastened his end. On being asked near the end of his career to account for his success he replied, "By working as hard as anybody I ever saw, or read about." His personality was described by his friends as charming, and by his enemies as little short of terrible. Among his most intimate friends were S. L. Clemens, and Helen Keller, and to both he rendered material assistance.

Aside from his business and family interests, Mr. Rogers took the greatest delight in the improvement of his native town, Fairhaven. Here he built himself a fine country place. His gifts to the town amounted to over \$3,000,000. They include a memorial church to his mother, a high school building, a library, a group of buildings valued at \$1,000,000 to the Unitarian church as a memorial to his first wife, and a Masonic Hall. He spent large sums in improving the streets and sewers, and served for several years as Superintendent of Streets. Mr. Rogers's other benefactions were large, but were made so unostentatiously that little was known of them. His estate, at his death, was valued at considerably over \$100,000,000.

ROMAN CATHOLIC CHURCH. There were no events in the history of the Roman Catholic Church in 1909 comparable in general interest to the centenary celebration of the founding of the arch-dioceses of New York, Philadelphia and Boston; the celebration of the Pope's jubilee; and the Eucharistic Congress in London, in 1908. Preparations were carried on during the year for the great Eucharistic Conference which is to be held in Montreal in November, 1910. At this conference several cardinals will be present. Preparations were also made for the commemoration in New York of the one-hundredth anniversary of the birth of Cardinal McCloskey, the first American cardinal. At this celebration, also, several cardinals are expected to be present. During this occasion St. Patrick's Cathedral will be consecrated, a ceremony which can be performed only when the entire debt has been paid off. It

is expected that this celebration will surpass even the centenary celebration of 1908.

The total membership of the Roman Catholic Church in 1908 was estimated at 230,866,533. Of this number 160,165,000 were in Europe; 58,393,882 in America; 6,574,481 in Oceania; 2,655,920 in Africa, 3,007,250 in Asia. In Europe, the largest number of Roman Catholics is found in France, where there are 35,387,000. Austria-Hungary follows with 31,100,100 and Italy is third with 29,850,000. In Germany there are 17,100,000 and in the United Kingdom 6,500,000.

UNITED STATES. The total Catholic population of the United States is estimated by the official Catholic directory at 14,347,027 in 1909. This estimate includes the entire membership of families professing the Roman Catholic faith. The hierarchy of the church is composed of 13 archbishops, of whom one is a cardinal, and 88 bishops. The secular clergy numbered in 1909, 12,274 and the religious clergy 4276, or a total of 16,550. There were 8849 churches with resident priests, and 4355 missions with churches. The total number of churches was 13,204. Under the direction of the church there were 83 seminaries with 6182 students, 217 colleges for boys, 709 academies for girls, 4845 parishes with schools, with 1,237,251 children in attendance, 289 orphan asylums, in which were 51,541 orphans, and 1125 charitable institutions. The total number of children in the Catholic institutions was 1,450,448.

During the year the church in the United States and its possessions lost by death three of its prominent prelates, Rt. Rev. William G. McCloskey, D. D., Bishop of Louisville, who died September 17, 1909; Rt. Rev. James B. Cotter, D. D., Bishop of Winona, who died June 28, 1909, and Rt. Rev. Thomas A. Hendrick, late Bishop of Cebu, Philippine Islands, who died November 29, 1909. Obituary notices of these will be found in their alphabetical order in this work.

Among the new members of the hierarchy consecrated during the year were the following: Most Reverend John D. Piterval, promoted to be Archbishop of Santa Fé, January 3, 1909; Rt. Rev. John P. Farrelly, consecrated Bishop of Cleveland, May 1, 1909; Rt. Rev. Thomas F. Hickey, D. D., succeeded to the See of Rochester, N. Y., January 18, 1909; Rt. Rev. James J. Carroll, D. D., consecrated Bishop of Nueva Segovia, Philippine Islands, February 14, 1909; and Rt. Rev. George W. Mundelein, D. D., consecrated auxiliary Bishop of Brooklyn, September 21, 1909.

The census of the religious bodies of the country for the year 1906, the results of which were published in 1909 by the United States Bureau of the Census, reveals much important information relative to the growth of the Roman Catholic Church in the United States in the period 1890 to 1906. During that time the church grew from a membership of 6,241,708 to 12,079,142, or an increase of 5,837,434, which is equivalent to 93.5 per cent. While this is a higher rate of growth than is shown by any of the Protestant bodies, it must be considered that the Roman Catholic Church includes as members all persons baptized into the church, and requires that all children of members shall be baptized as soon as possible, thereby themselves becoming members, while the Protestant bodies, as a rule, admit as mem-

bers only those who, after reaching a fairly mature age, declare their desire to join the church. The great increase in the membership of the Roman Catholic Church during this period is largely due to the volume of immigration during that time, a great proportion of these immigrants belonging to the Roman Catholic faith. The value of the property under the control of the Church in 1906 was given at \$292,038,787, as compared with a value of \$118,123,346 in 1890, or a growth of 147 per cent. This percentage of increase is surpassed only by the Latter Day Saints and several independent denominations. The clergy of the church increased in the period under discussion from 9166 in 1890 to 15,179 in 1906 or 65.6 per cent.

FOREIGN COUNTRIES. In France considerable criticism was caused by the appointment of Abbé Loisy, who has been one of the most prominent exponents of Modernism, to the Chair of Religions at the Collège de France, which was formerly occupied by M. Raville. For an account of this and other events dealing with the relation of the church and state in France, see the article FRANCE, paragraphs on *History*. In Italy there was considerable criticism in Parliament of the government's policy of non-interference with the Vatican. This called forth a statement from the Minister of Public Worship to the effect that intolerance was considered by the government to be foreign to the modern idea of liberty. He declared that while the government would not enter into any alliance with the Roman Catholic Church it had no intention of interfering with the exercise of its legitimate functions. There were anti-clerical demonstrations in various parts of the country during the year, and on October 3 it was reported that the Pope pronounced personal and general excommunication against all the inhabitants of the city of Adria and its suburbs, for severely injuring Bishop Bogiani of that Diocese during an anti-clerical demonstration. This was the first general excommunication of a city during the present Pontificate.

There were no particular developments in Great Britain in which the church was concerned. One of the most important events was the death of Father Tyrrell noted below.

MODERNISM. Modernism remained in the same quiescent condition which marked it in 1907 and 1908. The death of Father Tyrrell (q. v.) removed the ablest and best known exponent of the movement. The Roman Catholic Bishop of Southwark, who had the support of Archbishop Bourne, refused to grant Father Tyrrell Catholic burial, but the prayers of the church were said "unofficially" at his funeral by Abbé Bremond, a well known French Catholic and author. The report of the Vatican Biblical Commission on the historical character of the first three chapters of Genesis dealt another blow at Modernism. Two of its eight declarations allow that the Fathers may be followed by superimposing an allegorical interpretation on the literal and historical sense, and also that it is lawful to discuss whether the word "day" means twenty-four hours or an indefinite period of time. The other declarations, however, declare that it is not lawful to discuss the truth of the literal and historical sense of the narratives. The words must be received in their plain and obvious meaning and the

exercise of private judgment upon them is absolutely forbidden. While these declarations do not possess Papal authority, they are published with the knowledge and consent of the Pope.

RÖNTGEN RAYS. See PHYSICS.

ROOT, ELIHU. United States Senator from New York. He was born in Clinton, N. Y., in 1845 and graduated from Hamilton College in 1864. His father was for many years professor of mathematics in this institution. He taught at the Rome Academy in 1865 and in 1867 graduated from the Law School of the University of the City of New York. In the same year he was admitted to the bar. He at once took a prominent position in his profession and in 1883 was appointed by President Arthur United States Attorney for the Southern District of New York. He was a delegate at large to the State Constitutional Convention of 1894 and Chairman of the Judiciary Committee. He was a member of the Commission on the Alaskan Boundary and in 1899 was appointed by President McKinley, Secretary of War. He retired from this office on January 31, 1904, and on July 7, 1904, he was appointed Secretary of State. He resigned that office on January 22, 1909, upon his election to the United States Senate to succeed Thomas C. Platt (see NEW YORK). The achievements of Senator Root while he held the portfolios of the War and State Departments form an important part of the history of the country during that period. Among the most memorable incidents was his journey through Central and South America while he was Secretary of State, for the avowed purpose of bringing about more friendly relations between the Republics of Central and South America and the United States. In this he was eminently successful. As Secretary of State he negotiated about forty treaties or conventions, many of them of great importance. He is considered to rank among the greatest of those who have held the portfolio of Secretary of State.

BOWING. The intercollegiate races were held on the Hudson River, near Poughkeepsie, on July 2, Cornell, Pennsylvania, Syracuse, Wisconsin and Columbia entering crews in the regatta. Cornell made a clean sweep in the three events and at the same time established two records. In the 'Varsity eight-oars (four miles) all five crews covered the distance in less than 20 minutes, a feat unaccomplished before since 1903. Columbia made a good showing in this event, the difference in time between her crew and Cornell's being only a little more than two seconds. Syracuse, the winner of the 1908 race, also made a good fight. The time of the several events as taken at the finish was: Cornell, 19 minutes 2 seconds; Columbia, 19 minutes 4½ seconds; Syracuse, 19 minutes 15½ seconds; Wisconsin, 19 minutes 24½ seconds, and Pennsylvania, 19 minutes 32½ seconds. In the 'Varsity four-oared event (two miles) Cornell made the record time of 10 minutes 1 second. The order of finish and time of the other crews were: Syracuse, 10 minutes 10 seconds; Columbia, 10 minutes 12 seconds, and Pennsylvania, 10 minutes 27½ seconds. The crew to finish last in 1908, Pennsylvania, made much better time than the winner of this race in 1908, Syracuse. Cornell's third victory, that of the freshman eight-oars, also established a new record, the crew covering the two miles in 9 minutes 11½

seconds. Syracuse finished second in 9 minutes 14½ seconds, Pennsylvania third in 9 minutes 21 seconds, Wisconsin fourth in 9 minutes 22½ seconds and Columbia last in 9 minutes 26 seconds.

The annual races between the Harvard and Yale crews took place on the Thames River, near New London, Conn., on June 26. Harvard was successful in each of the three events, a feat never accomplished by either college before. The time made by the Harvard crews, however, was much slower than that made by Cornell on the Hudson. In the 'Varsity eight-oars Harvard covered the four miles in 21 minutes 50 seconds and Yale in 22 minutes 10 seconds. The 'Varsity four-oared event was the closest of the three races, the difference in time between the two crews being only 9 seconds. Harvard's time for the two miles was 13 minutes 14 seconds and Yale's 13 minutes 23 seconds.

The Harvard freshman eight had more trouble winning than did the 'Varsity, but still the victory was a fairly easy one. The time of the winning crew, 11 minutes 32 seconds, was over two minutes slower than the Cornell youngsters made on the Hudson. Yale's time in this event was 12 minutes 9 seconds.

Several dual college regattas were held during 1909, of which the one held on Lake Cayuga with Harvard and Cornell as contenders was the most important. The Cornell eight defeated the Harvard crew in a two-mile race by 1½ lengths, Cornell's time being 10 minutes 41 seconds and Harvard's 10 minutes and 47 seconds. Harvard was more successful in the race with the Columbia 'Varsity, defeating the latter by 5½ lengths over a 1½ mile course on the Charles River. Other dual races and their results were: Pennsylvania eight defeated Yale eight over a 1½-mile course on the Schuylkill River by 1 length; U. S. Naval Academy eight defeated New York University eight over a 1½ mile course at Annapolis by 10 lengths, and Syracuse University eight defeated U. S. Naval Academy eight over a 2-mile course at Annapolis by 3 lengths. Two dual college regattas were held on the Pacific Coast in 1909, Stanford University defeating the University of California over a 3-mile course in Oakland Estuary, and Stanford University defeating the University of Washington over a 3-mile course on Washington Lake, Seattle.

The thirty-seventh annual championship regatta of the National Association of Amateur Oarsmen was held on the Detroit River, August 6-7. The principal events and winners were: Senior international fours, New York A. C.; senior double sculls, Harlem R. C.; championship senior sculls, J. W. O'Neil, St. Mary's A. A. and A. Club, Halifax, N. S.; senior eight-oars, New York A. C.; senior four-oars, Ottawa R. C., Ottawa, Ont.

The seventh annual regatta of the National Rowing Association, commonly called the American Henley, took place on the Schuylkill River on May 22 over a course 1 mile 550 yards long. There were a large number of contestants and four new records were made. The winners of some of the more important events and the time made by each were: First four-oared shells, Arundel B. C., Baltimore, 7 minutes 5½ seconds (new record); Intercollegiate race, Cornell, 6 minutes 26½ seconds (new record); first single sculls, Durando Miller, New York A. C., 8 minutes 4½ seconds (new record); first eight-oared

shells, Harvard (junior eight), 6 minutes 36½ seconds; second eight-oared shells, University of Pennsylvania freshmen, 6 minutes 42½ seconds; first double sculls, Harlem R. C., N. Y., 7 minutes 14 seconds (new record).

A feature of the Hudson-Fulton celebration, held in New York, was the fifth contest for the Battenberg Cup, which was presented to the enlisted men of the American Atlantic fleet by the enlisted men of the British cruisers *Drake*, *Cornwall*, *Berwick*, *Essex*, *Bedford* and *Cumberland*, comprising the squadron commanded by Rear-Admiral Prince Louis of Battenberg, which visited the United States in 1905. Three crews entered the 1909 contest—U. S. S. *Louisiana*, U. S. S. *Minnesota* and the British cruiser *Drake*. The victory went to the *Minnesota* crew of 12 men, which defeated the *Louisiana* crew over the three-mile course by half a length, the *Drake* tars being nine lengths behind.

The Royal Club Nautique de Gand, Belgium, won the Grand Challenge Cup at the Henley Regatta in England by defeating Jesus College, Cambridge, by 1 length. Other events of the regatta and their winners were: Diamond Challenge Sculls, A. A. Stuart, Kingston R. C.; Thames Challenge Cup, Wadham College, Oxford; Silver Goblets, Leander Club, and Visitor's Challenge Cup, Christ Church, Oxford.

The sixty-sixth annual Oxford-Cambridge regatta was won by Oxford for the first time in four years, the winner's time being 19 minutes 50 seconds.

ROZHDESTVENSKY, ZINIVY PETROVITCH. A Russian admiral, died January 14, 1909. He was born in 1848. He served with merit in the Russo-Turkish war of 1877-8, and subsequently acted as adviser to the Bulgarian government in connection with the reorganization of fleet. After several commands he served as naval attaché at London. He was head of the General Staff in 1904, when war broke out with Japan, and was given command of the fleet, hastily got together, which was ordered to Japanese waters to raise, if possible, the siege of Port Arthur, then beleaguered by the Japanese. While en route, on October 21, vessels of his fleet fired into the Hull fishing fleet, in the North Sea, sinking two boats and killing several fishermen. In spite of this mishap, which was ascribed to panic and lack of discipline on the Russian vessels, the fact that Rozhdestvensky brought his heterogeneous and ill-manned fleet intact to its goal, proves him to have been a good seaman and disciplinarian. In the battle of the Sea of Japan which followed he was so outnumbered and outmanœuvred by the Japanese that the outcome was never in doubt. Rozhdestvensky himself showed great bravery. He was severely wounded in the head and was taken off his vessel by the Japanese. Following his recovery and release he was tried by court martial in 1906 for inefficiency, although he voluntarily assumed the entire responsibility for the disaster.

RUBBER. In 1909 the total imports of india-rubber, gutta-percha, and substitutes therefor into the United States amounted in value to \$83,682,013, as compared with \$46,455,689 in 1908. There were imported in 1909 93,969,114 pounds of india-rubber, valued at \$79,264,817, as compared with 76,289,474 pounds, valued at \$44,696,526 in 1908. Brazil furnished the greatest amount, supplying 44,219,808

pounds, as compared with 38,028,444 in 1908. Mexico followed with 19,604,810 pounds, as against 11,657,245 in 1908, while the United Kingdom supplied 12,114,339 pounds in 1909, as compared with 11,805,484 in 1908. In 1909 there were imported 803,569 pounds of balata, valued at \$385,625, 742,868 pounds of gutta-percha, valued at \$155,040, and 36,817,929 pounds of joolatong, valued at \$1,420,220. The manufactures of india-rubber imported into the United States in 1909 were valued at \$1,390,684, as compared with \$1,509,629 in 1908, and those of gutta-percha amounted to \$71,857, as compared with \$97,592 in 1908. The exports of india-rubber in 1909 were valued at \$8,874,485, as compared with \$6,887,419 in 1908. Belting, hose and packing formed the largest single class on the list of exports, amounting in value to \$1,800,300 in 1909, as compared with \$1,256,490 in 1908. Rubber boots and shoes to the number of 3,150,294 pairs, were valued at \$1,653,466 in 1909, as compared with 2,440,663 pairs, valued at \$1,329,170 in 1908. Scrap and old rubber exported in 1909 were valued at \$519,418, as compared with \$393,686 in 1908. Reclaimed rubber in 1909 was valued at \$486,675, as compared with \$327,388 in 1908. All other exports aggregated \$4,413,626, as compared with \$3,580,685 in 1908.

Rubber advanced in price during the year. Pará "upriver fine raw," for example, sold at New York for \$1.21 to \$1.22 a pound at the beginning of the year and \$1.78 to \$1.80 at its close, with other grades in proportion.

The imports of rubber at Antwerp in 1909 were 4685 (metric) tons as compared with 5035 tons in 1908, due in the main to the diminishing supply from the Belgian Congo, whence only 3492 tons were imported as compared with 4202 tons in 1908. The Belgian government decided to abandon to private enterprise the exploitation of rubber in the Congo, and its proposed plan was to be carried out in three sections at intervals of one year from July 1, 1910. Difficulty had been experienced in enforcing the obligation to plant and tend a number of trees or vines in proportion to those destroyed and it was proposed to abandon this and to levy an export duty which will be devoted to a special fund for replanting. In this way it was intended to plant annually about 2000 hectares under state auspices, using chiefly *Hevea* and *Funtumia*.

The entries at the port of Pará for the crop year ending June 30 of rubber of all grades were given as follows:

1906-6 tons.....	34,490
1906-7 tons.....	35,095
1907-8 tons.....	36,650
1908-9 tons.....	38,690

BRAZIL'S EXPORTS OF RUBBER PRODUCED IN THE REPUBLIC
Compiled by Federal Bureau of Statistics
PARÁ RUBBER (Including Caucho)

	1907	1908
Manáos	16,767,834 Kg.	18,065,000 Kg.
Pará	16,017,611	16,781,000
Columbia.....	392,594	527,000
Other Ports .....	.....	513,000
Total	33,382,681	35,696,000

CEARA RUBBER ("Manicoba")

	1907	1908
Ceara	588,854 Kg.	579,000 Kg.
Bahia	1,285,103	1,249,000
Illa do Cajuelro	620,824	327,000
Other Ports		11,000
Total	2,428,678	2,166,000

MANAGABEIRA RUBBER

	1907	1908
Bahia	264,811 Kg.	106,409 Kg.
Rio de Janeiro	75,586	52,607
Santos	100,931	33,092
Corumba	75,800	80,337
Other Ports		72,072
Total	678,238	344,607
Grand total	36,489,597	38,206,607

It was reported during the year that probably about 400,000 acres in tropical Asia were planted with *Hevea brasiliensis* and it was estimated that in seven or eight years this would furnish about 40,000 to 50,000 tons of clean rubber or a good deal more than half of the world's present production.

Rubber as an industry has flourished in the Federated Malay States, which have become the largest exporting country in the East. Java also had a rubber industry firmly planted and was believed to be in a position to become an important producer of rubber. Sumatra and Borneo were being exploited as rubber countries, and Ceylon and India had extensive plantations.

RUM. See LIQUORS, FERMENTED AND DISTILLED.

RUMANIA. A constitutional monarchy composed of the Moldo-Wallachian provinces (formerly Turkish) and the territory of the Dobruja. Capital, Bucharest.

AREA AND POPULATION. Total area, 50,715 square miles. Population (1899), 5,956,690; estimated, 1907, 6,684,265; 1908, 6,700,000. The census of 1899 returned 5,489,296 Rumanians; 262,447 Jews; 104,108 Austro-Hungarians; 22,989 Turks; 20,057 Greeks. Large numbers of Gypsies are scattered over the country. The movement of the population during three years is given below:

	Marriages	Births	Deaths	Still-born
1906	66,863	262,438	157,204	6,167
1907	70,263	274,487	175,794	6,567
1908	61,499	272,850	185,393	6,963

The principal cities with their inhabitants (estimated 1908) were: Bucharest, 290,810; Jassy, 79,320; Galatz, 65,495; Braila, 59,964; Ploeshti, 47,999; Craiova, 45,807; Botosani, 33,738; Focsani, 24,652; Berlad, 24,248.

EDUCATION, ETC. Primary education is free and nominally compulsory; but inadequate provision is made. Nearly 80 per cent. of the population is illiterate. The 4264 public elementary schools had, in 1905, 6194 teachers and 500,158 pupils. There are 11 normal schools, with 1489 students; 107 high and secondary schools, with 1110 teachers and 20,153 pupils; besides special agricultural, silvicultural, in-

dustrial, and engineering schools. There are two universities, at Bucharest and Jassy.

The population is divided according to religions as follows: Orthodox Greeks, 5,451,787; Jews, 266,652; Roman Catholics, 149,667; Mohammedans, 44,732; Protestants, 22,749; others, 21,103. The Berlin Treaty provides for religious tolerance and equality; but the Jews have been harshly treated.

AGRICULTURE. The soil is very rich, and but for the severe droughts would be among the most productive in Europe. A large majority of the population is engaged in agricultural pursuits, over 40 per cent. of the agricultural land being in small holdings of 25 acres or less possessed by 1,015,302 peasant proprietors. Of the total area, 5,476,166 hectares are actually under crops and 525,249 are fallow; 1,014,015 are under pasture; 491,126 under meadow; 184,807 under vineyards and orchards. Forests cover 2,282,300 hectares, of which the state owns 1,065,529. The forest products form a valuable asset. Cattle and sheep raising is an important industry. In December, 1900, the live-stock numbered 2,589,526 cattle, 5,655,444 sheep, 864,324 horses, 1,709,205 swine, and 232,515 goats. Wheat, corn, millet, barley, rye, beans, peas, flax, hemp, vines, fruits, sugar-beets, and tobacco are grown.

MINERALS. Minerals and precious metals are said to abound, but only salt, coal, and petroleum are worked. Salt is a government monopoly. The output of coal in 1905-6 was 140,671 metric tons. The output of the petroleum wells, both government and private, was, in 1905-6, 685,364 metric tons; in 1906-7, 887,091; in 1908, 1,147,727 (an estimate for the calendar year). There are reported to be 76 pipe lines, with a total length of 410 miles.

COMMERCE. The total imports and exports amounted in 1907 to 430,590,115 and 554,018,631 lei respectively (1 lei=19.3 cents), against 422,114,125 and 491,360,178 lei in 1906. The principal articles of trade and their value in 1907 are given as follows:

Imports	Lei
Metals and metal manufactures	115,309,000
Textiles (vegetable fibre)	74,151,000
Machinery	44,281,000
Wool and woollen manufactures	36,061,000
Hides and skins	14,063,000
Exports	Lei
Cereals and flour	473,342,000
Wood and wooden wares	25,356,000
Petroleum	24,748,000
Fruits and vegetables	11,066,000
Animal products	6,629,000

The principal countries of origin and destination are given in the following table:

	Imports 1906	Imports 1907	Exports 1907
Germany	142,264,272	147,533,000	56,078,000
Austria-Hungary	119,387,580	105,272,000	32,730,000
Great Britain	62,680,716	69,881,000	86,387,000
Italy	18,212,206	20,549,000	44,366,000
France	19,413,118	20,375,000	32,424,000

COMMUNICATIONS. There were (1908) 1989 miles of railway in operation, and 295 miles under construction or projected. All lines are worked by the government. In 1907 the length

of telegraph lines was 4770 miles, with 12,475 miles of wire and (1907-8) 3047 offices. There were 18,002 miles of telephone lines, with 30,135 miles of wires. In 1907-8 there were 3280 post-offices. The merchant marine (1909) consisted of 407 sailing vessels of 123,024 tons, and 88 steamers of 22,142 tons. The number of vessels entered at the ports in 1908 was 32,915 of 9,269,209 tons; cleared, 32,564 of 9,194,311 tons.

An International Commission, created by the Treaty of Paris and with powers enlarged by the Treaty of Berlin, has its seat at Galatz, and exercises sovereign powers over the navigation of the Danube. Its income, derived principally from shipping dues, amounts annually to about £60,000.

FINANCE. The unit of value is the leu, worth 10.3 cents. The revenue and expenditure for three fiscal years (estimate for 1908-9) are given in lei as follows:

	1906-7	1907-8	1908-9*
Revenue.....	238,916,239	316,322,638	411,011,035
Expenditure....	237,739,238	248,780,419	408,741,268

* Including railway and other budgets not hitherto comprehended in the state budget.

The budget for 1910 balanced at 435,685,322 lei.

The capital of the debt stood, March 31, 1909, at 1,450,674,563 lei. The service of the debt for 1908-9 was estimated at 84,370,244 lei (interest, 59,877,465; redemption of capital, 24,492,779). The National Bank of Rumania had, December 20, 1908, capital and reserves, 37,264,000 lei; notes and cash bonds in circulation, 265,676,000; cash in hand, 127,313,000; public funds and property, 17,909,000.

ARMY. By a law of 1908 reorganizing the army personnel military service was made compulsory between the ages of 21 and 40, 7 years being spent with the active forces, 5 years with the reserve, 3 years with the militia, and the remainder of the time with the territorial army. The period of service for infantry requires two years with the colors and five on leave, for other branches three years with the colors and four on leave, and for the navy four years with the colors and three on leave. In the Rumanian army a distinction was made between the illiterates and the educated classes, in the annual conscription of about 60,000, the latter amounting to about 10,000, forming the Schimbul and merely passing through short periods of training and stated drills. The Schimbul in 1909 was being diminished and its infantry abolished, increased thoroughness of training being the rule. The reserve militia and territorial armies are all elaborately organized and military training is given young men before the age of conscription. The annual recruit contingent is about 60,000. The peace effective

in 1909 was 3835 officers, 589 civil employees, 1049 military cadets, 88,176 men, 18,881 horses and 452 cannon. In time of war the army would be increased to 7600 officers, 280,000 men, 86,000 horses, and 644 cannon. The total war strength was estimated at 650,000. The army is organized in 4 corps, each of two divisions (two brigades) with the exception of the second, which has 3. There were 36 regiments of infantry, 34 battalions of reserves, 9 battalions of rifles, 2 companies of gendarmes and 1 corps of frontier troops, 18 regiments of cavalry, 18 regiments of field artillery with six mountain and howitzer batteries, 2 regiments of fortress artillery, 4 squadrons of military train, 4 battalions of sappers and miners, 4 companies of telegraph troops, 1 battalion of railway troops, 1 battalion of pioneers, 1 battalion of pontoon train, 1 balloon section, 4 companies of sanitary troops, and various other technical and supply troops. An elaborate system of military instruction was maintained, with a war college and various service schools, as well as schools for the instruction of non-commissioned officers.

NAVY. The navy consists of one protected cruiser of 1320 tons; a training-ship of 350 tons; 7 gunboats, 6 coast-guard vessels, a screw despatch boat (240 tons), 6 first-class and 2 second-class torpedo-boats. Twelve naval police boats, with eight vedettes, were launched October 4, 1907. Two new armored cruisers are projected.

GOVERNMENT. The executive power is vested in the King, with a cabinet of eight and the Prime Minister. The legislative body is composed of a Senate (120 members), and a Chamber of 183 deputies elected by a system of direct and indirect popular votes based on property qualifications. The present King, Charles I., was born April 20, 1839 (o. s.), married, November 15, 1869, to Elizabeth, Princess von Wied (Carmen-Sylva); crowned, May 22, 1881. The heir-presumptive is Prince Ferdinand von Hohenzollern, born August 24, 1865. The Council of Ministers (March and November 1909) is composed as follows: Premier and Minister of the Interior, J. J. C. Bratiano; Foreign Affairs, A. G. Djuvara; Public Instruction and Worship, Spiru Haret; Commerce and Industry, M. G. Orleano; Finance, E. Costinesco; Agriculture and Domains, A. Costinesco; Justice, T. Stelian; War, General Crainiciano; Public Works, B. G. Mortzun.

RUSSELL SAGE FOUNDATION. See CHARITY ORGANIZATION.

RUSSIA. An empire of northeastern Europe and northern Asia, stretching from the Baltic to the Bering Seas, and from central Europe and Asia to the Arctic Ocean. Its capital is St. Petersburg.

AREA AND POPULATION. The area and population in 1907, according to the latest statement of the Russian Central Statistical Committee, and the estimated population for 1906 and 1908, are given below:

	Area sq. miles	Pop. 1906	Pop. 1907	Pop. 1908
Russia	1,862,524	109,354,600	111,279,500	113,841,000
Poland	49,018	10,947,300	11,138,700	11,360,500
Finland	125,784	2,892,088	10,663,900	2,968,000
Caucasia	180,603	10,458,500	6,893,900	10,908,000
Siberia	4,786,730	6,710,600	9,118,000	7,048,000
Central Asia	1,325,530	8,941,000	2,925,300	9,305,000
Internal waters	317,168	.....	.....	.....
Total Russian Empire.....	8,647,657	149,334,088	152,009,300	155,423,000

The population, according to the census of 1897, was divided by races as follows: Aryans, 100,331,616; Uralo-Altayans, 17,669,067; Jews, 5,070,205; Georgians, 1,352,535; other Caucasians, 1,091,782; Chinese, Japanese, and Koreans, 86,113; Hyperboreans, 33,602. The statistics of the Medical Department of the Ministry of the Interior for 1904 give the total births at 6,413,485 (European Russia, 5,539,174; Asiatic Russia, 874,311); the total deaths at 3,949,227 (European, 3,406,452; Asiatic, 542,775); showing a total excess of 2,464,258 births over deaths. The emigrants in 1904 numbered 128,211, of whom 80,892 went to the United States and 21,434 to Great Britain; in 1905, 72,425 went to the United States and 18,611 to Great Britain. The chief cities with population are given as follows: (1) European Russia: St. Petersburg, 1,678,000; Moscow, 1,359,254; Warsaw, 750,426; Odessa, 449,673; Lodz, 351,570; Kiev, 319,000; Riga, 282,230; Kharkov, 173,980. (2) Asiatic Russia: Baku, 179,133; Tiflis, 159,590; Tashkent, 155,673; Irkutsk, 10,000; Tomsk, 67,419.

INTERNAL MIGRATION. A bad harvest in European Russia is the signal for the eastward march of thousands into that new land of promise—Siberia. The year 1908 was a poor crop year in many districts, and the figures of the 1909 emigration into Siberia are expected to exceed those of all previous years. The returns for 1908 give the internal emigration at 758,812, of whom 121,204 returned, leaving 637,608 permanent settlers, against 415,377 in 1907, 125,800 in 1906, and 29,126 in 1905.

EDUCATION AND RELIGION. The provision for primary education, especially in the country districts, is small out of all proportion to the needs of the population, not more than about 10 per cent. of whom receive instruction of any sort. The Ministry of Public Instruction and the Holy Synod divide the control and the burden of maintenance of the elementary schools, of which there were in 1906 92,501, with 170,894 teachers and 5,738,289 pupils. Secondary education is provided in gymnasias, progymnasias, and realschools for both sexes; but numbers and attendance are small. The zemstvo vioskas (districts) maintain their own gymnasias and progymnasias. Special schools are few and confined to the principal (Eu-

The established religion is the Russo-Greek, officially known as the Orthodox Catholic Faith. The Emperor is nominally the head of the church, but the Procurator of the Holy Synod is the practical director in church affairs. Although all religions are professedly tolerated, there are effective limitations placed on the Jews, and the dissenters (estimated at 12,000,000) are persistently persecuted. The division of the population according to religions is given as follows (no reliable figures existing for number of dissenters, who are largely included among the Greek Orthodox): Greek Orthodox and United Church, 87,123,604; Mohammedans, 13,906,972; Roman Catholics, 11,467,994; Jews, 5,215,805; Lutherans, 3,572,653; Dissidents, 2,204,596; Armenian Gregorians, 1,179,241; Buddhists, 433,863; Reformed, 85,400; Mennonites, 66,564; Armenian Catholics, 38,840; Baptists, 36,139; Karaims, 12,894; Anglicans, 4183; other Christians, 3952; other non-Christians, 285,321.

AGRICULTURE. Of the total cultivated area in 1907, 226,812,000 acres were sown to cereals, 144,592 to tobacco, 10,305,000 to potatoes, 5,568,000 to flax and hemp, 1,517,083 (1907-8) to sugar beets; 87,127,000 were under meadow. In European Russia (1905) 401,435,000 acres were arable, 191,473,000 under orchards, meadow, and grass, 474,000,000 under forest; in Poland, 17,739,000 arable, 6,059,000 under orchards, etc., and 6,700,000 under forest. The ownership of the productive area was divided as follows: The State and Imperial family, towns, etc., European Russia (1905) 417,618,000 acres and Poland (1907) 2,184,000 acres; peasants, 374,634,000 and 12,233,000; private owners, 274,656,000 and 13,726,000. The peasants—chained to the soil by a debt which they have had no voice in assuming and which had increased, up to January 1, 1906, to a total of 1,630,681,249 roubles—being unable to meet annual payments on their holdings, the 1906 payment, by a manifesto of November 3 (16), 1905, was reduced to one-half and the 1907 payment had to be annulled. A failed crop means unpaid interest, unpaid interest results in accumulated debt; and the consequence of the increasing burden is a condition of actual serfdom more hopeless than that before the "liberation."

The main crops and the total yield for three successive years are given as follows:

	1907 (poods)*	1908 (bushels)†	1909 (bushels)†
Wheat	803,936,600	942,571,000	1,145,373,000
Rye	1,253,161,300	782,790,000	896,835,000
Barley	848,497,500	569,486,000	783,271,000
Oats	469,791,900	377,926,000	473,617,000
Flax	83,744,902 bu.	61,354,000	39,909,000
Hemp	53,692,669 bu.	87,166,000	107,082,000
Emmer	8,286,478 bu.	10,483,000	20,786,000
Buckwheat	33,924,112 bu.	45,788,000	51,844,000
Potatoes	1,747,705,700	1,082,585,000	1,192,240,000
Onions	10,850,000	9,250,000	8,350,000
		poods	poods
Sugar beets		534,550,460	420,170,350

*One pood=36 English pounds.

†Bushels of weight: Wheat and potatoes, 60 pounds; rye, corn, and millet, 56 pounds; barley, buckwheat, 48 pounds; spelt, 36 pounds; oats, 32 pounds.

in) cities. There are universities at St. Petersburg, Moscow, Odessa, Warsaw, Kazan, Kharkov, Tomsk, and Yuriev. According to the census of 1897, 72 per cent. of the population over nine years of age were illiterate.

The area planted to flax (3,687,500 acres), in 1907, yielded 33,641,200 poods of seed; that planted to hemp (1,880,600), 25,524,700 poods of seed and 30,450,200 of fibre. Under tobacco (1906) were 144,592 acres, yielding 72,330

tons. The total number of live-stock is given for 1908 as follows: Cattle, 43,204,000; horses, 29,285,000; sheep and goats, 61,549,000; swine, 12,734,000.

Of the total forest area, the state possesses 286,428,666 acres in European Russia, 13,418,328 in the Caucasus, 361,945,497 in Asiatic Russia (exclusive of the Amur region), 288,742,000 in the Amur region; a total of 950,534,491 acres, from which the revenue derived in 1907 amounted to 58,987,000 roubles (1 rouble = 51.5 cents), against 57,534,000 in 1906. See IRRIGATION; FORESTRY.

MINING AND METALS. The Obdorsk, Ural, and Altai regions contain enormous mineral wealth and are the principal centres of the mining and metallic industries producing gold, silver, lead, platinum, copper, iron, rock salt, marble, asbestos, manganese and kaolin. Russia is, after the United States, the world's greatest petroleum producer. Great beds of steam coal and anthracite have been discovered in the basin of the Donetz. The latest official figures for the output of the various mines are as follows: Gold (1906), 29,333 kilos; platinum (1905), 5158 kilos (about 95 per cent. of the world's production); silver (1906), 5169 kilos; lead (1905), 526 tons; zinc (1906), 8967 tons; copper (1906), 10,256 tons, (1907), 14,554 tons, (1908 estimate) 16,591 tons; coal (1906), 21,368,000 tons; salt (1905), 112,551,000 poods; asbestos (1905), 15,970,285 poods; quicksilver (1904), 325 tons. The annual output of manganese ore is reckoned at about 30,000,000 poods; of chromic iron ore, 1,600,000 poods. The output of the Baku oil fields was 410,000,000 poods in 1905, and 448,400,000 in 1906. The production of pig iron was, 1906, 164,226,000 poods; 1907, 171,953,000 poods. Iron and steel (worked), 1906, 138,411,000 poods; 1907, 145,020,000 poods.

MANUFACTURES. The latest statistics of the Department of Industry of the Ministry of Finance give the following figures for the inspected manufactories in Russia (European), Poland, and four governments of the Caucasus, on January 1, 1906: Number of establishments, 14,376; employees, 1,693,322, of whom 1,104,520 were men, 412,876 women, and 175,927 children. There were, June 30, 1906, 2551 distilleries with output of alcohol 99,559,000 gallons; 1907, 2559 with output 106,794,000 gallons; 1908, 2610 with 115,106,000 gallons. The number of sugar works, June 30, 1906, was 277 with a production of 55,596,000 poods; 1907, 279 with 77,671,000 poods; 1908, 278 with 76,046,000 poods. The number of cotton spindles in operation (March 1, 1909) is given as 7,829,240; in course of construction, 361,284.

COMMERCE. The following table shows the development of the total foreign commerce of the empire, with value in roubles, for three successive years:

	1906	1907	1908
Imports: Merchandise.....	800,690,000	847,365,000	926,517,565
Precious metals	37,963,000	10,937,000	No returns
Exports: Merchandise	1,094,886,000	1,053,010,000	1,005,089,954
Precious metals	17,899,000	13,108,000	No returns

The Commerce of European Russia (by way of the European frontiers, including the trade with Finland and by the Caucasian borders of the Black Sea) in great classes for three years, is given in next column, in roubles:

	1906	1907	1908
Imports	1906	1907	1908
Articles of food.....	105,771,000	118,890,000	123,375,000
Raw and half-raw materials.....	337,835,000	375,776,000	406,780,000
Animals	975,000	1,054,000	1,409,000
Mfd. goods.....	179,860,000	200,508,000	215,743,000
Total imports.....	624,444,000	696,228,000	747,307,000
Exports	1906	1907	1908
Articles of food.....	597,474,000	559,745,000	517,340,000
Raw and half-raw materials.....	346,010,000	383,342,000	370,548,000
Animals	27,250,000	22,731,000	23,386,000
Mfd. goods.....	31,137,000	26,195,000	26,702,000
Total exports.....	1,001,871,000	992,013,000	937,976,000

Across the Asiatic frontier rice was imported to the value of 5,840,000 roubles in 1905, 3,721,000 in 1906, 4,424,000 in 1907; raw cotton, 6,119,000 roubles in 1905, 7,833,000 in 1906, 7,412,000 in 1907. Sugar was exported across the Asiatic frontier to the value of 12,720,000 roubles in 1905, 15,525,000 in 1906, 12,429,000 in 1907; cottons, 18,080,000 roubles in 1905, 22,627,000 in 1906, 19,272,000 in 1907. The value of the total trade of the empire for 1906 and 1907, and of the trade of European Russia across the three frontiers above mentioned for 1907 and 1908, with the different countries of origin and destination, may be seen in the table on next page.

The principal articles of import from Germany are machinery and woollens; from Great Britain, machinery and coal; from the United States and Egypt, raw cotton; exports to Germany, Great Britain, the Netherlands, France, and Belgium consist in large part of cereals, timber, eggs, and flax. The exports of pig iron in 1908 were 9344 tons, against 72,384 tons in 1907, and the exports of iron and steel and manufactures thereof in 1908 were 98,937 tons, against 146,952 tons in 1907. The principal countries to which the exports went in 1908 were as follows, in tons: Pig iron: Italy, 4848; Austria-Hungary, 2544; Germany, 912; Great Britain, 672;—raw iron and steel: Great Britain, 22,672; Rumania, Turkey, and Bulgaria, 21,936; Italy, 6928; Germany, 2224; Austria-Hungary, 1568; Netherlands, 880;—iron and steel and manufactures thereof: Germany, 832; Great Britain, 224; Austria-Hungary, 144; Rumania, Turkey, and Bulgaria, 132; Italy, 128.

SHIPPING. The shipping entered and cleared at all ports in the foreign trade of the Empire for 1907 is given on next page.

The merchant marine consisted, January 1, 1909, of 2465 sailing vessels of 257,716 tons, and 898 steamers of 443,243 tons; total, 3363 vessels of 700,959 tons. The naphtha flotilla of the Caspian Sea numbers 57 steamers and 263 sailing vessels.

INTERNAL COMMUNICATIONS. The length, December 1, 1908, of state railway lines was 28,091 miles; of lines owned and operated by companies, 11,851 miles; of local lines 1448 miles; making a total of 41,390 miles (34,662

Total Commerce of the Empire

	1906		1907*	
	Imports	Exports	Imports	Exports
Germany	298,422,000	284,675,000	337,367,000	291,041,000
Great Britain	105,726,000	225,447,000	114,935,000	228,504,000
China	97,427,000	57,530,000	89,742,000	26,440,000
United States	47,450,000	5,712,000	55,588,000	8,414,000
France	23,717,000	76,506,000	29,420,000	73,414,000
Finland	31,983,000	47,277,000	29,187,000	49,659,000
Persia	24,503,000	31,756,000	25,314,000	28,264,000
Austria-Hungary	21,357,000	45,046,000	24,108,000	42,626,000
Italy	10,895,000	51,959,000	13,085,000	34,436,000
Egypt	12,219,000	2,552,000	12,262,000	3,424,000
Sweden	6,547,000	9,589,000	11,669,000	8,362,000
Netherlands	13,233,000	107,959,000	11,405,000	114,382,000
Belgium	7,209,000	41,330,000	9,030,000	37,225,000
Norway	5,983,000	6,344,000	7,897,000	7,464,000
Turkey	7,826,000	15,242,000	7,218,000	19,319,000
Denmark	6,437,000	30,772,000	5,915,000	29,913,000
Spain	1,640,000	8,028,000	2,153,000	2,401,000
Rumania	844,000	17,583,000	2,089,000	13,532,000
Greece	1,144,000	10,391,000	1,153,000	10,411,000
Other Countries	71,128,000	19,189,000	112,506,000	23,779,000
Total	800,690,000	1,094,886,000	847,365,000	1,053,010,000

Commerce of European Russia

	1907		1908	
	Imports	Exports	Imports	Exports
Germany	311,397,000	290,375,000	320,061,000	278,648,000
Great Britain	114,284,000	228,770,000	121,043,000	220,059,000
China	15,820,000	.....	14,692,000	559,000
United States	53,291,000	7,727,000	74,567,000	2,428,000
France	28,596,000	73,356,000	35,033,000	64,378,000
Finland	29,263,000	50,269,000	28,783,000	48,725,000
Persia .....	.....	.....	.....	.....
Austria-Hungary	23,615,000	42,582,000	25,070,000	48,819,000
Italy	13,042,000	34,455,000	12,699,000	29,936,000
Egypt	12,240,000	3,419,000	13,767,000	3,638,000
Sweden	11,249,000	8,287,000	10,261,000	4,678,000
Netherlands	11,549,000	114,329,000	11,586,000	93,578,000
Belgium	9,040,000	37,252,000	8,121,000	34,359,000
Norway	7,922,000	7,378,000	8,251,000	5,809,000
Turkey	6,468,000	18,130,000	6,763,000	21,279,000
Denmark	5,394,000	29,916,000	9,187,000	31,385,000
Spain .....	.....	2,401,000	.....	.....
Rumania .....	.....	13,550,000	2,652,000	12,792,000
Greece .....	.....	.....	.....	.....
Other Countries	43,058,000	29,717,000	44,771,000	36,906,000
Total	696,228,000	992,013,000	747,307,000	937,976,000

* Incomplete and subject to revision.

Entered		Tons
Ports	Vessels	
of the White Sea.....	803	506,000
of the Baltic.....	5,952	4,240,000
of the Black and Azov.....	3,893	5,802,000
of the Pacific Ocean.....	623	692,000
Total	11,271	11,240,000

Cleared		Tons
Ports	Vessels	
of the White Sea ..	797	512,000
of the Baltic	6,077	4,280,000
of the Black and Azov.....	3,756	5,646,000
of the Pacific Ocean	617	695,000
Total	11,247	11,233,000

European Russia, 6728 in Asiatic Russia). Passengers carried (1907), European Russia, 6,213,000 Asiatic Russia, 6,493,000; freight, 192,000 poods and 369,000 poods; gross receipts, 705,692,000 and 80,012,000 roubles; total cost of construction (1904), 5,174,410,000 and 7,235,000 roubles. In 1905 the railways employed 751,197 men. The new lines opened to traffic in 1907 were the Bologoe-Volkovsk (555 miles), the Krasnyi-Kut Buzan (318), and short lengths totaling 193 miles. Lines opened January 1-October 23, 1908, were the Ulukhanlu (118) and short lengths totaling 96 miles. Lines under construction (1909) were the

Achinsk-Irkutsk and the Perm-Yekaterinburg (total 1236 miles, of which 257 were open for temporary service).

Some idea of the extent of projected railways in Russia may be obtained from the following list published by the London *Times* (not including the Armavir-Toaysé line along the Black Sea littoral of the Caucasus, under construction with the aid of British capital, nor the Podolia Railway, the statutes whereof have already been approved; the length of the latter to be 148 miles, the line to connect Shepetovka-Proskurov-Kaminietz-Podolski): The Omsk-Semipalatinsk line, 752 miles; the Ob (Yurga)-Semipalatinsk, 510 miles; the Uralsk-Semipalatinsk, 1428 miles; the Kharkov-Kherson and Konotop-Poltava-Lokhvitz, 659 miles; Kharkov-Kherson, 328 miles; Riga-Lgoff, 662 miles; Orsha-Nizhnedneprovsk, 551 miles; Lgoff-Minsk, 374 miles; the Brainsk-Minsk, 310 miles; the Kiev-Balta and Tsvetkovo-Pogrebishtche, 220 miles; the Kiev-Uman-Nikolaieff, 382 miles; the Uman-Nikolaieff, 178 miles; the Tsvetkovo-Kazatin, 165 miles; the St. Petersburg-Kinel or Samara via Rybinsk, Nijni Novgorod and Simbirsk, with alternate terminus at Samara, 879 miles; the Babaev-Batraki, 609 miles; the Volga-Viatka (Nijni-Kotel'nitch), 218 miles.

There are in European Russia proper 77,721 miles of rivers, canals, and lakes (16,080 navigable for steamers, 8598 for small sailing ves-

sels, 28,516 for rafts); in Asiatic Russia 73,848 (21,544 for steamers, 8289 for small sailing vessels, 25,065 for rafts). The river fleet of European Russia numbered (1906) 3696 steamers (3205 of 165,004 horse-power in 1900), and vessels other than steam 22,980 of 13,000,000 tons; freight carried (1906), 2,084,000 poods.

The total length of telegraph line was (1907) 118,334 miles, of which 105,619 miles were owned by the state, the remainder by the railways, private companies, and the police; number of telegraph offices, 6363; number of post-offices, 13,983.

FINANCE. The unit of value is the rouble, worth 51.5 cents. The total ordinary and extraordinary revenue and expenditure for three fiscal years (1908 being the budget estimates voted by the Duma and the Council of the Empire and sanctioned by the Emperor) are as follows:

Revenue	1906	1907	1908
Ordinary	2,271,669,948	2,342,474,585	2,386,945,498
Extraordinary	1,084,110,662	143,043,178	194,457,670*
Total	3,355,780,610	2,485,517,763	2,581,403,168
Expenditure			
Ordinary	2,061,134,448	2,195,968,445	2,312,251,090
Extraordinary	1,161,562,990	286,640,032	269,152,078
Total	3,212,697,438	2,582,608,477	2,581,403,168

* 181,476,470 rubles to be realized by loan.

The estimated revenue and expenditure, ordinary and extraordinary, for the fiscal year 1909 balanced at 2,595,048,978 roubles. The principal sources of revenue and the main avenues of expenditure as contained in the budget for the year are given in the following table:

Revenue	Roubles
State monopolies:	
Sale of spirits	717,000,000
Posts	55,500,000
Telegraphs	27,400,000
Mint	6,200,000
Mines	388,300
State domains	686,695,982
Indirect taxes:	
Customs	276,450,000
Excise	247,308,200
Stamps, dues, etc.	140,708,578
Direct taxes	193,882,233
Repayment of loans	41,189,843
War indemnity	10,622,405
Redemption payment (peasants)	570,700
Various	54,824,741
Total ordinary	2,458,740,982
Extraordinary	5,181,200
From loans	181,126,796
Total revenue	2,595,048,978
Expenditure	Roubles
Communications	553,156,218
War	473,919,473
Finance	452,117,269
Public debt	396,362,868
Interior	154,377,910
Marine	89,353,158
Public instruction	63,936,902
Justice	71,488,306
Agriculture	71,036,472
Commerce and industry	39,177,992
Holy Synod	31,663,444
Imperial household	16,395,595
Audit	10,017,704
Great State administrative and Congressional bodies	8,385,621
Foreign affairs	6,211,014
Maintenance of stud	1,970,971
Various	10,000,000
Total ordinary	2,449,534,917
Extraordinary	145,514,061
Total expenditure	2,595,048,978

The total public debt stood, January 1, 1909, at 8,835,884,191 roubles. Interest for the fiscal year 1909 was reckoned at 371,782,060 roubles; amortisation, 23,519,493; exchange, 1,061,315; total service, 396,362,868.

The Bank of Russia stood, January 8 (21), 1909, as follows: **Assets:** Cash and credit notes, 1,423,873,000 roubles; portfolio, 218,631,000; advances, loans, 277,722,000; bonds, stock, 97,756,000; branch accounts, 346,922,000. **Liabilities:** capital and reserve, 55,000,000 roubles; note circulation, 1,200,000,000; deposits, etc., 446,947,000; treasury account current, 210,930,000; branch accounts, 433,176,000. There were (1908) 6710 savings banks, with 6,210,238 depositors and 1,149,200,000 roubles of deposits; 49 mortgage banks; the Peasants' Land Bank; and 36 shareholders' commercial houses.

NAVY. The larger vessels of the effective navy in 1909 were as follows: First-class battle-

ships: one of 13,516 tons; one of 12,912 tons; one of 12,480 tons;—second-class battleships: one of 13,318 tons; one of 10,280 tons; one of 10,180 tons; one of 9244 tons; one of 8880 tons; one of 8433 tons;—armored cruisers: one of 15,000 tons; one of 12,336 tons; one of 12,130 tons; three of 7900 tons each. In 1909 there were building the following first-class battleships: four of 23,000 tons each; two of 16,630 tons each; two of 12,733 tons each. The number and displacement of effective war ships, built and building, of 1000 or more tons, and of torpedo craft of 50 or more tons, were as follows in 1909: Battleships of 10,000 tons and over, 13, aggregating 213,200 tons; coast-defense vessels, 4, of 21,380 tons; armored cruisers, 7, of 70,200 tons; cruisers over 6000 tons, 7, of 46,460 tons; one cruiser of 3,100 tons; cruisers 3000 to 1000 tons, 7, of 8800 tons; torpedo-boat destroyers, 97, of 36,254 tons; torpedo-boats, 56, of 6734 tons; submarines, 32, of 6122 tons; total, 224 war vessels, aggregating 412,250 tons. For the ten-year period ending December 31, 1910, Russia's naval expenditure is placed at \$519,461,000.

ARMY. The Russian army is divided into the European, the Caucasian, and the Asiatic armies, the periods of service and the organization varying more or less in each. Military service is universal and compulsory, there being separate classes of service and requirements for the troops of Russia proper, for the Cossack forces, for Finland, and for the native races under Russian rule. Normally military service extends from the 21st to the end of the 43d year, three years (four years in the cavalry and engineers) being spent with the colors in the first line or active army, and 13 or 15 years in the reserve, with two periods of training of 6 weeks, and the remainder in the first van of the territorial army or *Opoltschenic*. This latter division or militia embraces those who are not included in the annual contingent for the

standing army, in number about 200,000 annually, and those who have completed their service either in the active army or the reserve. There are different regulations for the recruitment of the Cossack and Asiatic forces as well as for exemptions in various parts of the empire. The Cossacks, however, have a peace effective strength of 65,930 men and 52,400 horses, and of these it was estimated that in 1909 not more than 58,000 were permanently with the colors. This force, however, could readily be raised to a war strength of about 150,000 men with 4000 officers, and as every able-bodied Cossack not in regular service is required to supply and maintain his own horse and be in readiness for military duty, this portion of the army may be seen to possess considerable strength. The Russian army in Europe is distributed through nine military districts, including Finland, the Caucasus, and the territory of the Don Cossacks and embraces 26 corps. Statistics as to the strength of the Russian army were not available, but the following table gives an approximation of the peace establishment:

Europe and the Caucasus		
Infantry.....	1103 Battalions	627,000
Cavalry.....	718 Squadrons	116,000
Artillery.....	{ 486 Field Batteries 230 Companies Fortress Art. }	138,000
Engineers.....	193 Companies	34,000
Army Services.....	.....	34,000
Total.....	.....	940,000
Asiatic Russia		
Infantry.....	211 Battalions	85,000
Cavalry.....	91 Squadrons	14,000
Artillery.....	{ 164 Field Batteries 58 Companies Fortress Art. }	15,000
Engineers.....	117 Companies	8,000
Army Services.....	.....	5,000
Total.....	.....	124,000

According to the budget the total peace effective was estimated at 1,384,000, in which were included the frontier guards, the gendarmerie, and the Cossacks. On a war footing the Russian active army would have a strength of about 50,500 officers and 2,855,000 men, including 1,792,000 infantry and 196,000 cavalry. This army of course would be widely distributed and not effective in any one part of the empire. To this active army must be added the available troops of the reserve, estimated at 1,064,000, frontier battalions 41,000, and Cossacks 42,000; and the territorial reserve of about 1,000,000 and the Opoltschenic of 1,300,000. The war strength of Russia was estimated at between 4,000,000 and 5,000,000, but it was considered very doubtful whether even two-thirds of this force could be put into the field or mobilized within a reasonable space of time. The annual contingent of recruits for the Russian army in 1909, as fixed by the Council of the Empire and the Duma was the same as 1908, namely, 456,535 men. Of these 432,000 were assigned to the army proper, 14,500 to the frontier guards, and 9596 to the navy. In addition there were over 16,000 Cossacks. There is considerable evasion of the compulsory service, especially on the part of the Jewish population, and in 1908 the number found fit for military service was 17,926 less than the contingent fixed by the Duma. The military

budget for 1909, approved by the Council of the Empire and the Duma, amounted to £40,366,000, besides an extraordinary charge of £1,661,460 for expenses on account of the Russo-Japanese War.

GOVERNMENT. All executive, legislative, and judicial powers are vested in the Emperor. The Council of the Empire (partly appointive, partly elective) and the Duma have equal legislative powers. The third Duma has been in session since November 1 (14), 1907. The administration of the empire is accomplished through various boards or high councils—the Senate, the Holy Synod, the Committee of Ministers, and the Council of Ministers. The Emperor of all the Russias (1909), Nicholas II., was born May 6 (18), 1868; married, November 14 (26), 1894, to Princess Alix of Hesse. He succeeded to the throne October 20 (November 1), 1894. The heir-apparent is the Grand-Duke Alexis Nicholayevitch (Czarevitch), born July 30 (August 12), 1904. The heads of departments in 1909 were as follows: President of the Council of the Empire, M. G. Akimoff; President of the Council of Ministers and Minister of the Interior, P. A. Stolypin; Minister of the Imperial Household, General V. B. (Baron) de Fredericksz; Foreign Affairs, A. P. Isvolsky; War, General W. A. Sukhomlinoff; Marine, Vice-Admiral E. A. Voyevodsky; Justice, J. G. Stecheglovitch; Public Instruction, A. N. Schwartz; Finance, W. N. Kokovtsoff; Commerce and Industry, W. J. Timiriaseff; Communications, S. V. Rukhloff; Procurator-General of the Holy Synod, S. M. Lukianoff; Agriculture, A. W. Krivocheyn; State Comptroller, P. A. Kharitonoff. President of the Duma, N. A. Khomiakoff.

The government of Poland is absolutely incorporated with that of Russia, and the employment of the Polish language for any public purpose is prohibited.

In the Baltic Provinces the Russian language is obligatory for all public purposes, as well as in the University of Dorpat, which has been deprived of all privileges of self-government. The administration headquarters has been transferred from Dorpat (whose name has been altered to Yuriev) to Riga.

HISTORY

AGRARIAN LAW. The agrarian question has been the most important one before the country. The first two Dumas desired a too radical solution of the problem and their aims were, in the circumstances, wholly impracticable. The third Duma, which was chosen as a result of the wholly arbitrary action of the government on a principle that excluded genuine popular representation, did not reflect in any sense the desires of the people, but rather those of the large landowners. In accordance with its constitutional privilege, the government promulgated a provisional law dealing with the agrarian question, subject to the subsequent approval of Parliament. This provisional law of 1906 was accepted by the Duma in its second session. It did not go far toward meeting the wishes of the reformers, but it nevertheless effected a breach in the old system, and it was thought that if properly executed, it would lead eventually to the Europeanizing of the land system. It at least prepared the way for the abolition of the system of communal property embodied in the Russian *mir*. It provided that every cultivator

with a parcel of land, even if the land was held as a part of the *mir*, should after twenty-seven years of possession become the absolute proprietor. Many speeches were made against it by members of the Left, who declared that it pillaged the poorer peasant on behalf of the rich one. The rich peasant who worked the soil acquired a property right, while the poor man who worked in a city and therefore could not cultivate his share in the *mir* forfeited the right. Approval of the law was voted by a large majority. Moderate opinion inclined to the view that it was an important step in the right direction. It did not settle the question, which was still open, but it prepared a way out of the difficulty.

THE RELIGIOUS QUESTION. Religious liberty was a prominent feature of the Manifestos of April and October, 1905. The clergy and the reactionary element generally were opposed to any measure that enforced this principle. The Church was the basis of the Russian bureaucracy, and the firm supporter of the government. All the governing classes were Orthodox. In spite of the Manifestos, the government planned to restrict in important respects the principle of religious liberty. It wished to forbid any change from Orthodoxy to a non-Christian faith. The extremists even went so far as to demand that no one should be permitted to abjure the Orthodox faith except after a period of forty days, during which he had listened to the admonitions of the clergy. The members of the Right formulated this plan by which a certificate must be produced by anyone who wished to change his faith, setting forth that for forty days the clergy had labored with him in vain. In spite of these efforts and the opposition of M. Stolypin, the Duma succeeded in carrying through a moderate measure, insuring a fair degree of religious liberty. It gave anyone the right to change his faith and even to become a non-Christian. On this last point the bill encountered vigorous opposition. M. Stolypin protested strongly against proclaiming freedom of conversion from a Christian to a non-Christian faith. Nevertheless it was carried and it permitted any person to describe himself as a professor of no creed. As it required the consent of the Council of State and the Czar, however, it was doubtful whether it would go into effect.

THE QUESTION AS TO THE POWER OF THE PURSE. According to the fundamental laws of the empire the Czar has exclusive competence in military and naval matters. Doubt has existed, however, as to the application of this principle to the army and navy budgets. Parliamentary control in all financial matters being the essence of constitutional government, the settlement of this question was of great importance to the Constitutionalists. The Octobrist leader, M. Goutchkoff, had directed his policy toward the twofold aim of strengthening constitutional government and improving the army and navy. He interpreted the laws entirely in favor of the Duma as regards the control of the army and navy financial items, and he believed that in this respect the Premier, M. Stolypin, was in accord with him. The first part of the Naval Budget accordingly was voted by the Duma. This was opposed by the Right as an infraction of the Imperial prerogative, and the Right at the same time believing that M. Stolypin would stand by the Duma in this course, at-

tacked him as a Liberal. The Czar refused to sanction this financial vote of the Duma, regarding it as an infringement on his privileges. Hence a ministerial crisis was expected, as it was supposed that M. Stolypin would resign rather than keep the office after such a violation of constitutional principles. On May 11 the Czar refused his resignation, and M. Stolypin decided to retain his portfolio and submit to the action of the government. This greatly damaged his prestige with the liberal element of the Duma, and it did not succeed in winning over the Right, which continued to distrust him. To conciliate the latter, M. Stolypin immediately brought in a proposal, which appealed very strongly to the "Nationalist" sentiment, for the Russification of eastern Poland. The government bill for this purpose turned the eastern part of Poland into a Russian government, to be known as the Department of Khelm. It abolished all Catholic fêtes, prohibited the use of the Polish language in schools and in all social, political and economic institutions, prevented the sale of lands to Poles, and promoted its sale to Russians. The measure was sharply criticised by the Poles. Among the arguments used against it was that it violated the Treaty of Vienna and destroyed the national life of Poland. One of the arguments advanced by the friends of the measure was that it would keep the Ruthenian converts. In the eastern part of Poland there were 304,000 Ruthenians and 310,000 Poles. The Ruthenians were regarded by the Nationalists as Russians, and they had been forcibly converted to Russian Orthodoxy in 1875-6, though for nearly 300 years—that is, since the Union of Brest in 1596—they had been united with the Roman Catholic Church. After the Manifestos of 1905 many of these converts returned to Catholicism. The Russians feared that the number of these Uniates would increase. Hence the stringency of the regulations against Catholic observances.

THE AZEFF CASE. In January it was reported in the newspapers that M. Azeff, chief of the Russian revolutionary socialists, had been cited before the tribunal of the revolutionary party and accused of being in the pay of the police since 1900 as an *agent-provocateur* and responsible for the "terrorist outrages," including the assassination of von Plehve, the Grand Duke Sergius, and the Governor Bogdonovich. It was also alleged at the time of his exposure that he was engaged in a plot against the life of the Czar. As a result of the exposure of Azeff, M. Lopukhin, former director of the police department, was arrested. Much sympathy with him was expressed in the newspapers, and a strict investigation of the charges against him was demanded. He was believed to be a victim of revenge, having, it was said, always opposed the employment of such men as Azeff and the old system of *agents-provocateurs*. In some quarters the arrest of Lopukhin was attributed to the offense which he had caused the government by his memorandum to the first Duma, referring to the methods pursued in the pogroms. When the matter came up in the Duma on February 24, the Premier declared that the government would prosecute vigorously any agents who committed crimes, but that it had no evidence that Azeff was guilty of criminal acts. Later, after a debate on the Azeff affair, the Duma voted confidence in the government's

course. The trial of Lopukhin began on May 11. The charge against him was that he had communicated to the terrorists confidential information in regard to Azeff, that he was implicated in seditious movements, and that he had committed treasonable acts. Lopukhin, on his own behalf, said that he had suspected Azeff of double-dealing, and when he heard of his plan to murder the Czar, he thought it his duty to unmask him. The sentence was five years penal servitude, but it was afterwards commuted to Siberia. The methods pursued by the government in the trial were generally criticised.

OTHER MATTERS BEFORE THE DUMA. Before the prorogation of the Duma on January 2 to February 2, Professor Milyukoff introduced a resolution against the infliction of the death penalty. This arose from the death sentence imposed on thirty-two workmen for having taken part in a railway strike three years before. The Right made violent speeches against the motion. On its rejection the entire opposition left the House. Subsequently the condemned workmen were reprieved by the Czar. In March a debate arose in the Duma on an interpellation of the government as to the alleged illegal emission of bonds by private railways guaranteed by the government. But the discussion was cut off by the Finance Minister's appeal to the special authority of the Czar in the matter, and by his assertion that the Duma had no right to interfere with the affairs of railways guaranteed by the government. The Right offered a petition to the Minister of Justice, asking for proceedings against M. Markoff for disrespect to the autocracy, but received the reply that the laws did not justify such proceedings. Markoff then petitioned the president of the Duma for a formal charge of lese-majesty. At the end of March the Ministry of Commerce submitted a project of tariff revision to the Duma for the purpose of increasing the exportation of Russian goods. The debate on the navy estimates began on March 30. The credit for the new battleships was rejected. A debate occurred in the Duma at the close of March on the subject of the Poles, in the course of which Professor Milyukoff, the leader of the Constitutional Democrats, and others protested against the insulting language employed by the Minister of Justice in his refusal to appoint Poles as judges in Poland. Early in the following month, the Octobrist motion for restriction of the death sentence by court martial was carried against the votes of the Right, by the aid of the Constitutional Democrats. The debate on conscription occurred in May, the Extreme Right accusing the Jews of evading the law. During the past year out of 64,000 Jews, 26,098 failed to obey the conscription summons. The attitude of the Jews in this matter was explained by some as due to their inequality before the law. A question arose in May from the proposal of the Extreme Right to change the electoral laws in the southwestern provinces so as to prevent the election of Polish landholders to the upper house. But the Premier advised a compromise measure whereby the elections in those provinces were deferred for a year. Toward the end of June the measure passed the Council of the Empire. Its provisions were wholly for the advantage of the Russian element and to the detriment of the Poles. The bill concerning the status of eastern Poland was referred to a committee at the beginning

of June, in spite of the Poles' demand for immediate rejection. In the week ending June 12, the budget for 1909 was adopted. At the same time the bill for religious freedom reached its third reading. Parliament was prorogued on June 15, and reassembled on October 23.

FINLAND. On February 18, the Finnish Diet was assembled, but it was dissolved a week later on account of the Speaker's reference to grievances in his reply to the Czar's opening address (see *FINLAND*, paragraph on *History*). In April a dispute arose between the Senate and the Imperial government in regard to a constitutional question, the Czar having implied that a measure ought not to have been referred to him because it was passed by the Diet which was afterwards dissolved, and the Senate having protested against this view as violative of Finnish law. As a result, the vice-president of the Finnish Senate and four Senators resigned their seats. The chief issue, however, was the demand of the Imperial government that bills affecting the Imperial interests should be submitted in advance to the joint consideration of the Secretary of State for Finland and the Council of Ministers. This and other constitutional questions were referred to the Russo-Finnish Commission, whose appointment was announced early in August. Its membership consisted of five Russians, five Finns and a Russian chairman, and its programme included the drafting of proposals for the regulation of the issuance of laws of general Imperial interest concerning Finland. On October 14 an Imperial rescript was issued, transferring from the Finnish Diet to the Imperial Legislature legislation as to military service, and in the meantime requiring Finland to pay an annual contribution into the Imperial treasury. On November 17 the Diet, after an all-night session, refused to accept this measure, and on the following day it was dissolved by the Czar's order. The new elections were to be held on February 1, 1910. Meanwhile the Russo-Finnish Commission had failed to agree, and there seemed little chance of reconciling the demand of Finland on the one hand for a separate army and legislative independence with the Russian insistence on the subordination of Finnish affairs to the Duma and on the reduction of autonomy. It closed its session with a vote of the Russian majority for reducing the Finnish Constitution to the status of provincial autonomy. The Finnish members feared the establishment of a military dictatorship would follow.

THE CZAR'S VISITS. The Czar, during a cruise on the Imperial yacht, met the Emperor William at Björkö, on June 17. On this occasion a British vessel was fired upon by a Russian destroyer because, through an error on the part of its pilot, it went too near the Czar's yacht. The shot did some injury to the steamer and wounded a fireman. The usual cordialities expressed between the two monarchs were not regarded as likely to modify Russian foreign policy. On June 26 the Czar and Czarina visited Stockholm. At the end of July the Czar, on board the Imperial yacht, was met at Cherbourg by the President of the French Republic, and on August 2 passed the English coast, where a cordial welcome was accorded to the Imperial visitor by King Edward. An immense naval review was held, banquets were given, and many cordial speeches interchanged (see *GREAT BRITAIN*, paragraphs on *History*). The Czar

was accompanied by his Foreign Minister, M. Isvolsky, who referred to the friendly relations between England and Russia, but declared that they were in no wise incompatible with the best relations with Germany, or any other country. In September the Czar visited the Crimea, where he was received with marks of popular favor. In October occurred the meeting with the King of Italy at Racconigi (see ITALY, paragraphs on *History*).

OTHER EVENTS. During 1908 the number of executions were reported at 782 as against 627 in the previous year. In January a number of St. Petersburg papers were fined for repeating the reports in foreign journals that the Russian police were responsible for terrorist outrages. M. Shipoff, who had resigned his position as Minister of Commerce, was succeeded in January by M. Timiriazeff, who was succeeded in turn in November by M. Timasheff, the governor of the State Bank. In February the Procurator, M. P. Isvolsky, resigned, and was succeeded by M. Lukianoff, who was professedly more conservative in policy. At the St. Petersburg conference on the coast trade in the Far East it was resolved that after October 14, 1909, steam traffic under foreign flags should be abolished, but that the Governor-General of the Amur Territory might permit, until October 14, 1913, a few foreign vessels to make single trips, and until that date the sailing trade might continue along the coast to Korea as far as Olga Bay. The Russo-British Chamber of Commerce held its first meeting on March 20. This institution promised to be successful in its object of promoting commercial friendship between the two countries. It invited the London and other English Chambers of Commerce to visit St. Petersburg on October 26. An arrangement was made by the London and St. Petersburg Chamber of Commerce for the holding of a Russian exhibition in London in 1911. In April the Gogol centenary was celebrated. In May General Stoessel and Admiral Nebogatoff were released from the fortress in which they had been confined. On June 24 a deputation from the Duma, including the president, M. Homiakoff, the leader of the Octobrists, M. Goutchkoff, and the leader of the Constitutional Democrats, Professor Milyukoff, visited London at the invitation of a committee, with the approval of the governments of both countries. They were hospitably entertained in London, Liverpool, Edinburgh and Oxford, and their visit did much to clarify public opinion in England as to the situation in Russia. On July 23 a local military tribunal passed sentence on a number of persons who were accused of belonging to a revolutionary society in the Government of Kursk. It condemned nine to death, including one member of the second Duma, twenty-five to penal servitude, including a member of the first Duma, and thirty-four to imprisonment in a settlement. It acquitted twenty. In the autumn of 1909, the rule as to the admission of the Jews to the Russian universities was rigidly enforced by the administration of the Duma. The rule fixed, on the basis of their proportion to the total population, the number of Jewish candidates at 3 per cent., but it had not been strictly regarded and a larger percentage of Jews had been admitted. Under M. Schwarz as Minister of Education, the administration became more strict, and in the autumn of 1908, the Council of Ministers decided upon the strict enforcement of the 3 per

cent. limitation; but the courses had already begun, and it was not until the autumn of 1909 that the rule went into complete effect. The universities construed the rule in a liberal spirit as applying not to the total number of Jews in the university, but to the number of admissions, and the University of Moscow admitted 60 Jews, although the number of Jews in the University was 5 per cent. The Minister immediately issued a circular insisting on the application of the rule to the University total. So the 60 applicants were refused and could not, according to the law of the pale, even remain in the city.

Rich deposits of copper and coal were reported to have been found in the Khirgiz steppe region, at the end of August. On October 15, the Finance Minister, M. Kokovtsoff, in his speech reviewing the state of the finances, said that there would be no new tax, that credit had been improved, that the value of securities had risen 21 and in some cases 23 per cent., and that the only new duty was that on cigarettes. The bi-centennial of the battle of Pultowa was celebrated on July 10 by a parade at Pultowa, and monuments were unveiled in many of the cities. On July 9 the foundation stone of Peter Bridge was laid. The plan for the new railway in the Caucasus was being pushed through, and the London market responded readily with subscriptions. It was decided that four *Dreadnoughts* should be laid down on June 17. They were to be built by British engineers. An important sanitary programme was undertaken in St. Petersburg in June, involving a system of drainage under a government special commission, at a cost estimated at 100,000,000 rubles. On December 22, Colonel Karpoff, Chief of the Secret Police of St. Petersburg, was killed by a bomb at a suburban lodging house, occupied by a man named Voskresensky. The latter was captured by the police, who also made a number of other arrests. The crime was supposed to have been the outcome of the revolutionary movement. For information concerning Russia's foreign relations, see articles AUSTRIA-HUNGARY, BALKAN QUESTION, CRETE, GREAT BRITAIN, ITALY, AND TURKEY, paragraphs on *History*.

RUSSIAN ORTHODOX CHURCH. See GREEK CHURCH.

RUTGERS COLLEGE. An institution of higher learning at New Brunswick, N. J., founded in 1766. The attendance in 1909 was about 400 students, with 42 members of the faculty. There were in the library 59,189 volumes. During the year special gifts were received to the amount of about \$50,000. During the year William I. Chamberlain, professor of mental philosophy and logic, resigned, and his position was filled for the year by Walter T. Marvin of Princeton University. An engineering building has been erected at a cost of \$75,000 and equipped at a cost of \$20,000. During 1909 a chemistry building was being erected at a cost of \$60,000. The productive funds of the college amount to about \$740,000. The president is W. H. S. Demarest, D. D.

RYE. The growing season of 1909 was well suited to the development of the rye crop and the favorable weather after May 1 had an especially good effect. The rye crop is not well distributed over the United States and can be regarded as a staple crop only in Michigan,

Wisconsin, Minnesota, New Jersey, New York and Pennsylvania, where it seems to have a more or less permanent place in the crop rotations, especially in the three States last mentioned. A reduction in the yield of this year was mainly caused by continued hot and dry weather in Pennsylvania, which made a short crop in that State.

The rye crop of 1909, according to the Bureau of Statistics of the United States Department of Agriculture, amounted to 32,239,000 bushels produced on 2,006,000 acres. In 1908 the corresponding figures were 31,851,000 and 1,948,000, respectively. The total value in 1909 was \$23,809,000. This year's total production ranks third among the crops since 1866, and the total value second, being the highest since 1891. In only 8 States did the crop of 1909 exceed a million bushels. The leading State, Pennsylvania, produced 5,508,000 bushels on 360,000 acres; Michigan, 5,425,000 bushels on 350,000 acres; Wisconsin, 4,727,000 bushels on 290,000 acres; New York, 2,720,000 bushels on 160,000 acres; Minnesota, 2,280,000 bushels on 120,000 acres; Nebraska, 1,320,000 bushels on 80,000 acres; New Jersey, 1,288,000 bushels on 79,000 acres, and Illinois, 1,264,000 bushels on 71,000 acres. In the Southern and the Western States comparatively little rye is grown. California, however, has an annual production of about 800,000 bushels.

The world's rye production for this year is estimated at 24 million bushels greater than in 1908, when it amounted to 1,887,083,000 bushels. Russia is the leading rye-producing country of the world, and the Russian crop for 1909 is estimated at more than 700,000,000 bushels. Germany, which ranks next to Russia, produced about 425,000,000 bushels on an area of 15,145,000 acres. All of this acreage, except about 250,000 acres, was winter rye. Austria-Hungary, which usually ranks third, is said to have yielded about 150,000,000 bushels. France produced, according to estimates, 60,580,000 bushels on 3,067,000 acres.

Rye grows with fair success in high northern agricultural latitudes and is giving good promise in parts of Alaska, where cultural tests have been made by the experiment stations. It also seems quite drought-resistant, and quite fair yields have been secured in dry regions with dry-farming methods. The rye acreage for 1910 is 1.2 per cent. larger than that of 1909 and the condition of fall growth is very good.

SAGE FOUNDATION. See CHARITY ORGANIZATION.

ST. ANDREW, BROTHERHOOD OF. An organization of the Protestant Episcopal Church, established for the spread of religious faith among young men. The 24th annual convention was held in Providence, R. I., October 13-17, with an attendance of about 1000 delegates. During the year many important State conventions were held, as well as several large district conventions, including the tri-diocesan convention at Washington. The Brotherhood numbers 825 senior chapters and 525 junior chapters. The total number of members, senior and junior, is about 14,000. The officers in 1907 were: Robert H. Gardner, President; H. T. W. English, First Vice-President; Hubert Carleton, General Secretary; George H. Randall, Associate Secretary, and Francis M. Adams, Treasurer. The official organ of the Brotherhood is *St. Andrew's Cross*.

ST. HELENA. An island of volcanic origin in the South Atlantic, 800 miles southeast of Ascension, the nearest land; a British possession. Area, 47 square miles; population (1907), 3746; 1908, 3558. The capital and port, Jamestown, with 1439 inhabitants, is an Imperial coaling station. The opening of the Suez Canal has diverted shipping from the island—once an important station on the route to India. Fishing and agriculture thrive, and flax cultivation and lace-making were established under government control in 1907. Imports, 1907, £35,000 (Great Britain, £32,000); 1908, £36,216 (Great Britain, £34,175). Exports, 1907, £4704 (Great Britain, £4598); 1908, £6685 (Great Britain, £5537). Revenue and expenditure, 1907, £7207 and £8057; 1908, £7432 and £8104. There is no debt. Governor (1909), Lieutenant-Colonel Henry Lionel Gallwey.

ST. KITTS, OR ST. CHRISTOPHER. An island which, with Nevis and Anguilla, forms a presidency of the Leeward Islands (q. v.); a British possession. Area (St. Kitts 65 square miles, Nevis 50, Anguilla 35), 150 square miles. Population (1901), 46,451 (St. Kitts 29,782, Nevis 12,774, Anguilla 3890); 1906, 49,289. Capital, Basseterre, with 9962 inhabitants. Products and exports, sugar and sugar products, salt, phosphate of lime, and cattle. Imports and exports (1907), £158,818 and £319,013, respectively; revenue, £40,336; expenditure, £47,170. Administrator (1909), T. L. Roxburgh.

ST. LUCIA. An island of the Windward Islands (q. v.), belonging to Great Britain. Area, 233 square miles; population (December 31, 1907), 54,599. The capital, Castries (7757 inhabitants), has one of the best harbors in the West Indies and is the chief coaling station for the fleet there. The whites are mostly French Creoles; the Roman Catholic is the prevailing religion, and the law is based on old French codes. Sugar (4982 tons in 1908), rum (23,440 gallons), cacao (1,355,000 pounds), and spices are the chief exports. Imports and exports were valued in 1908-9 at £289,775 and £252,668, respectively, against £310,309 and £264,401 in 1907-8. Revenue and expenditure for 1908-9 amounted to £65,694 and £65,038, respectively; the public debt stood at the end of the fiscal year at £151,030. Administrator and Colonial Secretary (1909), Edward John Cameron.

ST. PIERRE AND MIQUELON. The largest islands of two small groups which constitute a French colony off the south coast of Newfoundland. Capital, St. Pierre. Total area, 93 square miles; population (1902), 6482, of whom a number have since emigrated to Canada. There are six free public and three private schools, with 631 pupils. The islands are mostly barren rock. Fishing is the chief industry. In 1907 there were 71 boats of 3294 tons, and 1281 men, engaged in the cod fisheries. Imports (1907), 5,031,936 francs (France, 2,637,568); exports, 7,255,930 (France, 6,378,000), of which 5,416,093 francs represented the fishery products. St. Pierre has steamship communication with Boston and Halifax, and telegraph cables to Europe and to the American continent. There were 4 post-offices in 1907. The local budget for 1908 balanced at 476,305 francs; the expenditure of

France, according to the budget of 1909, was 204,220 francs. The outstanding debt, January 1, 1907, amounted to 478,404 francs. In 1907, 1732 vessels of 109,946 tons entered, and 1750 of 106,860 tons cleared at the islands. The colony is governed by an administrator, assisted by a consultative council of administration and municipal councils.

ST. THOMÉ OR SAN THOMÉ AND PRINCIPE. See SÃO THOMÉ AND PRINCIPE.

ST. VINCENT. An island of the Windward Islands (q. v.), belonging to Great Britain. Part of the Grenadine Islands are administered under St. Vincent. Area, 140 square miles; estimated population (1909), 52,592, about three-fourths negroes. Capital, Kingstown, with (1901) 4747 inhabitants. Sugar and sugar products, arrowroot, cassava, cacao, coffee, cotton, and spices are chief products and exports. Imports and exports (1908-09), £113,713 and £54,444, respectively. Revenues and expenditure (1908-9), £31,395 and £27,200. Administrator, Colonial Secretary, and Treasurer (1909), C. Gideon Murray.

SAKHALIN (KARAFUTO). An island off the eastern coast of Siberia. Formerly the entire island was Russian, but that part of it south of the 50th parallel was ceded to Japan by the Treaty of Portsmouth, September 5, 1905. Russian Sakhalin has an area of about 16,370 square miles and upwards of 12,000 inhabitants. It is no longer used as a penal colony. It possesses enormous coniferous forests, extensive beds of an inferior grade of coal, and valuable petroleum deposits. The exploitation of the latter has begun. Japanese Sakhalin has an area of about 12,489 square miles and a population (1908) of 26,392 (Japanese, 24,106). There are valuable and extensive forests, but at present the fisheries are the most important source of wealth. The budget for 1909-10 balanced at 1,866,190 yen, the larger part being contributed by Japan.

SALTING, GEORGE. An English art collector, died December 12, 1909. He was born in Australia in 1836. His father had there large sugar estates and sheep farms, the great wealth derived from which came to his sons. He was educated at Eton and the University of Sydney. In early life he went to England to reside, and began a collection of pictures and objects of art. He became an expert in Chinese porcelains and accumulated a fine collection of porcelains and other treasures of Oriental art from the old Dutch houses in Holland. His Oriental collections were surpassed only by those of J. Pierpont Morgan and possibly by the royal collections in Dresden. They were for twenty years loaned to the Museum in South Kensington. After amassing this collection, as well as a fine assortment of English furniture, he began buying in Paris, spending \$200,000 at the famous Spitzer sale of Renaissance objects of art. After this he turned his attention to pictures, of which he gradually acquired a good knowledge. He formed a fine collection of Dutch pictures, an interesting gathering of Italian masters, and a large and valuable assortment of drawings and miniatures. He was undoubtedly the greatest English art collector of this age and perhaps of any age. He was somewhat eccentric in his personal habits and lived very modestly in London. His collections were left to the nation.

SALTORO PASS. See EXPLORATION.

SALTS, AQUEOUS SOLUTION OF. See CHEMISTRY.

SALVADOR. A Central American republic, on the Pacific coast, south of Guatemala and Honduras. The capital is San Salvador.

AREA AND POPULATION. The area of the 14 departments constituting the republic is about 7225 square miles. The population in 1906 was placed at 1,116,253, of whom 772,200 were mestizos and 234,648 Indians. San Salvador had 59,136 inhabitants in 1905. Other towns, with population in 1901, are: Santa Ana, 48,120; San Miguel, 24,788; Nueva San Salvador, 18,770; San Vicente, 17,832; Sonsonate, 17,016.

Primary instruction is free and compulsory. A decree of September 13, 1909, provides for the standardizing of primary instruction in the public schools. There are about 600 primary schools, which in 1907 had 34,752 pupils enrolled and an average attendance of 24,713. There are over 20 higher schools, including three normal and three technical schools, and a national university.

PRODUCTION. The people are principally engaged in agriculture. The chief crop is coffee, of which the annual production amounts to some 37,500 tons. Other products are cacao, tobacco, indigo, rubber, Peruvian balsam, sugar, and bananas. The forests yield mahogany and other cabinet woods, dyewoods, balsams, gums, and resins. Various valuable mineral deposits occur, including gold, silver, copper, lead, and iron, but mining is chiefly confined to gold and silver. There is a little exploitation of copper, iron, and lead. The manufacturing industries, which are small, produce fibre ropes and hammocks, cigars and cigarettes, palm-leaf mats and hats, saddlery, confectionery, alcohol, and some silk and cotton textiles.

COMMERCE. Imports and exports in 1907 were valued at \$3,440,721 and \$6,065,384, respectively; in 1908, \$4,240,580 and \$5,787,677, respectively. The principal articles of import are cotton textiles, hardware, flour, drugs and medicines, boots and shoes, and silk and woolen goods. The leading exports in 1908 were: Coffee, 55,215,110 pounds, valued at \$3,899,430; mining products (chiefly gold), \$1,235,631; sugar, 7,042,178 pounds, valued at \$251,077; indigo, 421,350 pounds, \$197,036; balsam, 143,678 pounds, \$77,474. Other exports included hides, tobacco, rubber, and rice. In order of importance, the leading countries of origin for imports were, in 1908, Great Britain, the United States, Germany, France, Italy, Belgium, and Honduras. The leading countries of destination of the exports were: The United States, \$1,984,000; Germany, \$993,221; France, \$971,813; Great Britain, \$429,003. Imports from the United States in 1908 were valued at \$1,404,573. The exports to the United States included: Gold bullion, \$822,181; other gold, and silver, \$387,902; sugar, \$26,680; rubber, \$10,595.

COMMUNICATIONS. The railway in operation amounts to about 100 miles. There is a line from San Salvador to the port of Acajutla, with branch connection to the city of Santa Ana, and another line connects San Salvador with Santa Tecla. A contract has been made for a railway from Santa Ana to the Guatemalan frontier, there to connect with the Guatemalan section of the Pan-American Railway.

Other lines are projected. The highways of the country, extending over 2000 miles, are kept in comparatively good condition. There are reported 85 post-offices, and 168 telegraph offices, with 2800 miles of wire. The telephone lines aggregate about 2000 miles.

FINANCE. The silver peso is worth from 36.5 to 37.5 cents. For 1907 the net revenue was reported at 8,669,189 pesos, and the expenditure, 10,620,846 pesos; for 1908, net revenue, 10,676,339 pesos (gross revenue, 12,768,277 pesos), and the expenditure, 12,210,993 pesos. For 1909 the estimated revenue and expenditure (including receipts of and expenditure from proceeds of a £1,000,000 loan) were 18,131,400 pesos and 18,308,564 pesos, respectively. The estimated revenue for 1910 was 11,007,000 pesos, and the estimated expenditure, 11,063,400 pesos. The chief sources of revenue are import and export duties and liquor taxes. The principal items of expenditure are for the public debt, war, and internal administration. At the beginning of 1909 the public debt amounted to 30,088,494 pesos.

GOVERNMENT. The executive authority is vested in a president, who is elected by popular vote for a term of four years, and is assisted by a cabinet of four members responsible to the National Assembly. The legislative power rests with this body, which is unicameral and is composed of 42 members elected annually. The President in 1909 was General Fernando Figuerroa, who was inaugurated March 1, 1907. See **ARBITRATION, INTERNATIONAL.**

SALVATION ARMY. A religious body founded on military principles by William Booth in 1878, although as a Christian Mission it had existed in London since 1865. The corps and outposts of the Army in the United States in 1909 numbered 886. The indoor attendance at its meetings was 9,392,491 and the open-air attendance 1,613,002. The local officers and bandsmen numbered 5494. There were 55,422 junior meetings held, with an attendance of 1,580,522. The relief institutions for the poor include 107 industrial homes, to which in 1909 12,104 men were admitted; 79 workmen's hotels with shelter accommodation for 7704; 23 slum posts, by which 2130 sick cases, and 27,761 families were visited during the year; 26 rescue homes, to which 1533 women and 1042 children were admitted; a bureau for missing friends, through which 206 persons were found during the year, and three colonies, embracing 2569 acres of land, in which were 399 persons. The Army distributed 19,778 Thanksgiving dinners, and 383,500 Christmas dinners (Thanksgiving and Christmas, 1908). It afforded temporary relief to persons outside industrial homes and hotels numbering 173,056 during the year. Summer outings were given to 4751 mothers and 35,949 children. Commander Miss Evangeline Booth is in charge of the work, with Colonel William Peart as chief secretary.

SAMOA, or SAMOAN ISLANDS. A group of islands in the Pacific about 2800 miles southwest of Hawaii and 1800 miles northeast of New Zealand. They belong partly to Germany and partly to the United States. See the article **GERMAN SAMOA.** In March signs of discontent under German control led to the dispatch of three German war vessels from the Eastern Asiatic Squadron, and early in the

following month it was announced that the ringleaders had been captured without fighting and that the squadron would make a tour of the islands for the restoration of order. By the middle of April it appeared that order was restored. In the meanwhile the subject had come up in the Reichstag, where the government was criticised for too great confidence in the good will of the natives, and complaints were made that arms were not given to the German settlers. Herr Dernburg, Colonial Secretary, denied these charges, saying that Germany would soon be in full control. He declared on this occasion that the English and Americans had found Samoa a hard problem to deal with and that they regarded themselves as under the protection of German suzerainty.

SAMOS. One of the Anatolian Islands; a more or less independent principality of the Ottoman Empire (under the guarantee of Great Britain, France, and Russia). Area, 181 square miles; population, 53,424. The capital, Vathy (population about 25,000), has a good harbor. The island is fertile throughout; wine, raisins, olive-oil, and tobacco are the chief products and exports. Antimony, silver and lead, manganese, emery, and copper occur. Imports and exports were valued (1908) at 26,301,920 and 24,774,004 piasters (1 piaster=4.4 cents), respectively (wine export, 10,099,000 piasters; cigarettes, 3,048,000). Navigation (1908), 1294 steamers of 435,616 tons and 2964 sailing vessels of 28,520 tons. The revenue for 1908 was estimated at 3,716,968 piasters (direct taxes, 1,215,500; indirect taxes, 2,415,000); expenditure, 3,664,886 (Interior, 1,424,351; Public Safety, 559,160; Instruction, 511,920; Justice, 420,460; tribute to Turkey, 216,800). The administration is in the hands of a Greek prince, appointed by the Porte, with a senate of four members and a representative chamber of 40 deputies. The Prince-Governor in 1909 was André Kopassiss Effendi, born 1856, appointed December, 1907.

SANCHA Y HERVAS, CYRIACUS MARY, CARDINAL. Archbishop of Toledo and Primate of Spain, died on February 25, 1909. He was born at Quintana del Pidio, Spain, on July 17, 1838. He was created cardinal May 18, 1894. Cardinal Sancha represented Spain in the Eucharistic Congress in London, in 1908.

SANDERSON, JOHN H. An American contractor, died May 13, 1909. He was convicted of defrauding the State of Pennsylvania in the furnishing of the new State Capitol at Harrisburg, on May 13, 1908. It was alleged by investigators that Sanderson had received payments of \$6,434,748 for work that cost only \$1,574,399 to do. He was sentenced to two years in the State penitentiary, but was out on bail pending an appeal, when he died. See **PENNSYLVANIA.**

SANFORD, EDMUND CLARK. An American psychologist and educator, elected on September 22, 1909, president of Clark College, to succeed the late Carroll D. Wright. He was born in Oakland, Cal., in 1859, and graduated from the University of California in 1883. From 1883 to 1885 he taught in Oahu College, Honolulu, and in 1887-8 was instructor in psychology in Johns Hopkins University. He was appointed instructor of psychology in Clark College in 1889, assistant professor in 1892, and full professor in 1900. Since 1895 he has been joint

editor of the *American Journal of Psychology*. In 1902 he was president of the American Psychological Association. Among his published works are *A Course in Experimental Psychology* (1898), and numerous papers on psychological subjects in the *American Journal of Psychology*.

SANITATION. The movement for a national bureau of health for the United States gained in strength during 1909, but nothing definite was accomplished. President Taft, in his message to Congress in December, urged the consolidation, in a single bureau, of the various national health activities now carried on by several government departments. The British Parliament enacted a Housing and Town Planning bill, which comprised, also, a requirement for the appointment of paid full-time county medical officers of health, to supervise health affairs in counties, including a general control of district health officers. The bill extended to the smaller towns and rural districts the right, and in certain cases the duty, of providing dwellings, at public expense, for rental to the so-called working classes. The Town Planning clauses of the bill are designed to improve the sanitary, economic and aesthetic conditions of city life, particularly in additions to the built-up areas of cities and towns. The central administrative control of the British Local Government Board over local sanitary conditions was increased by the bill.

Improvements in State and municipal health administration in the United States continued during the year, particularly as regards water and milk supplies, attempts to control the spread of communicable diseases, and reforms in local health board organization and equipment. See also GARBAGE AND REFUSE DISPOSAL, SEWAGE PURIFICATION, SEWERAGE, STREET CLEANING, WATER PURIFICATION, AND WATER WORKS.

SANTO DOMINGO, or DOMINICAN REPUBLIC. A West Indian republic, occupying the eastern and larger portion of the island of Haiti. The capital is Santo Domingo.

AREA AND POPULATION. The estimated area of the six provinces and six districts constituting the republic is about 18,045 square miles. The estimated population is 610,000, mostly of mixed Spanish and African blood. The prevailing language is Spanish. The principal towns, with estimated population, are: Santo Domingo, 20,000; Puerto Plata (the chief port) and Macoris, about 15,000 each; Santiago, 12,000. Instruction in primary schools is free and nominally compulsory. The state also maintains superior, normal, and technical schools, and a professional school. The estimated number of schools is about 300, with about 10,000 pupils. The state religion is Roman Catholicism, but other religious forms are tolerated.

PRODUCTION. The inhabitants of Santo Domingo are engaged chiefly in agriculture, although farming methods are for the most part primitive. Recently the government has undertaken to foster and develop the agricultural and live-stock industries. The leading crops are cacao, sugar, tobacco, coffee, and bananas. The forests contain many valuable woods, as mahogany, lignum-vitæ, satinwood, etc., and these have had considerable exploitation. There are large quantities also of excellent building woods, and it is estimated that there are be-

tween 1,000,000 and 1,500,000 acres of merchantable pine in the country; nevertheless, a large part of the lumber used for building purposes is imported. The mineral resources include gold, iron in large quantities, copper, coal (including anthracite), petroleum, nickel, silver, mercury, asbestos, and salt. Salt is produced, some copper is mined, and the exploitation of petroleum has been begun; otherwise the development of the mineral wealth of the country is negligible.

COMMERCE, ETC. Imports and exports have been valued as follows:

	1906	1907	1908
Imports.....	\$4,281,337	\$5,156,121	\$5,127,463
Exports.....	6,543,872	7,638,536	9,486,344

The leading imports in 1908 were: Cotton manufactures, \$1,186,551, of which the United States and Great Britain furnished \$504,646 and \$466,031, respectively; iron and steel manufactures, \$605,246 (\$386,994 from the United States); rice, \$360,728; flour and other foodstuffs. The chief exports in 1908 were: Cacao, 41,903,470 pounds, valued at \$4,269,047 (about two-thirds to Germany); sugar, 69,703 tons, valued at \$3,092,429; tobacco, 18,665,594 pounds, \$1,009,608; coffee, \$325,153; bananas, 454,010 bunches, \$234,002. Other exports, shipped in small consignments, were dyes, live-stock, hides and skins, coconuts, copra, gums and resins, honey, wax, vegetable fibres, and woods. The imports to and the exports from Santo Domingo by countries were as follows in 1908:

Countries	Imports	Exports
United States	\$2,891,722	\$4,212,449
Germany	868,230	4,220,283
Great Britain	788,621	.....
France	212,002	907,898
Spain	123,194	339
Italy	116,428	13,268
Other Countries	127,266	132,101

In 1908 the total entries of vessels in the foreign trade numbered 752 (206 sailing), of 849,687 tons; clearances, 712 (201 sailing), of 781,169 tons. There are about 130 miles of railway, and over 430 miles of telegraph line.

FINANCE. Revenue and expenditure are reported as follows, for fiscal years:

	1906	1907	1908
Revenue.....	\$3,826,679	\$3,964,632	\$4,175,033
Expenditure...	2,067,696	2,355,431	.....

The revenue is derived chiefly from customs, which amounted in 1906 to \$3,082,074; in 1907, \$3,314,119; in 1908, \$3,232,890. An American citizen is temporarily general receiver of customs under a treaty between the United States and the Dominican Republic, in virtue of which (since April, 1905) 55 per cent. of the customs revenue (less expenses of collection) are deposited, in New York, in trust for all the national creditors. Pursuant to the treaty a loan was issued amounting to \$20,000,000, guaranteed by the import and export duties. In 1909 the finances were in a prosperous condition, the republic carrying in New York on January 1 a credit balance of \$6,616,850 in

bonds and \$947,973 in cash. The estimated expenditure for 1908 was \$3,984,300; for 1909 the estimated revenue and expenditure balanced at \$4,024,230. On May 28, 1909, the Congress passed a law prescribing that obligations originating prior to July 1, 1904, should be presented to the Finance Department for examination and settlement before January 1, 1910, and if not presented before that time would be considered lapsed. The standard of value in the Dominican Republic is the United States gold dollar.

GOVERNMENT. Under the present Constitution, proclaimed April 1, 1908, the executive authority is vested in the President assisted by a cabinet of seven members. The President is elected by indirect vote for a term of six years. The legislative power devolves upon the National Congress of two houses, the Senate (12 members) and the Chamber of Deputies (24 members). The President in 1909 was Ramón Cáceres, who was installed in 1906 to complete his predecessor's term of office, and was inaugurated for a full term on July 1, 1908.

SÃO THOMÉ AND PRINCEPE. Two islands in the Atlantic off the coast of French Congo, constituting a Portuguese dependency. Total area, about 360 square miles; population (census of November 12, 1900), 42,103 (37,776 in São Thomé and 4327 in Príncipe). Negroes numbered 40,639. The principal commercial products are coffee, rubber, cinchona, and cacao, of the last named the islands being one of the world's important sources. The exports of cacao to Lisbon in 1907 amounted to 402,221 bags of 132 pounds each; in 1908, 477,175 bags. The re-exports from Lisbon to the United States in 1908 were 91,869 bags, or about one-eighth of the total American import. In 1906 the total imports and exports of the dependency were valued at 2,315,005 milreis and 6,790,620 milreis, respectively. For the fiscal year 1908-9, the estimated revenue and expenditure were 721,210 milreis and 618,588 milreis, respectively. See PORTUGUESE AFRICA.

SARAWAK. A British protectorate on the west coast of Borneo. Area, about 50,000 square miles; population, 500,000 (Malays, Dyaks, Kayans, Kenyahs, Chinese, etc.). Capital, Kuching. Sago, gutta-percha, rubber, beeswax, bird's-nests, tobacco, rice, rattans, pepper, and gambies are produced. Coal in great quantities is present, as well as gold, silver, diamonds, antimony, and quicksilver. Total imports and exports (1908), 4,467,988 and 5,732,733 dollars (Mexican), respectively (gold export, 1,130,760 dollars). The revenue (derived chiefly from opium, gambling, arrack, Malay exemption tax, etc.) in 1908 was 1,259,482 dollars, and the expenditures amounted to 1,243,643, against 1,441,194 and 1,359,273 in 1907. The present Rajah, Sir Charles Johnson Brooke, was born June 3, 1829, and succeeded his uncle, Sir James Brooke, in 1868.

SASKATCHEWAN. A province of Canada. Area, 250,650 square miles. Population (1906), 257,763. The capital is Regina, with 6169 inhabitants in 1906. The executive power is exercised by a lieutenant-governor, appointed by the Governor-General of Canada and acting through a responsible Executive Council. There is a unicameral Legislative Assembly of 41 elec-

tive members. The Lieutenant-Governor in 1909 (from September, 1905) was Amedée Emmanuel Forget; the Premier, Walter Scott. For statistics and other details, see CANADA.

SATURN. See ASTRONOMY.

SAVINGS BANKS. According to the report of the Comptroller of the Currency the number of savings banks in the United States on April 28, 1909, was 1703, as compared with 1453 in 1908 and 1002 in 1900. There were a total of 8,831,864 depositors, or about one in ten inhabitants, as compared with 6,107,083 depositors or about one in twelve inhabitants in 1900. The aggregate deposits were \$3,713,405,709, as compared with \$2,449,547,000 in 1900. The average amount due each depositor in 1909 was \$420.45; and the average deposit per capita total population was \$41.75, as compared with \$31.78 in 1900. Moreover, the 1909 statistics were exclusive of 339 State banks and trust companies in Illinois with \$204,908,505 savings deposits credited to 641,634 depositors. The aggregate resources of the 1703 savings banks were \$4,072,710,000; loans, including mortgages owned, amounted to \$2,033,268,000, and bonds to \$1,713,471,000. The magnitude of these figures is shown by the fact that the aggregate resources were equal to over 40 per cent. of the aggregate resources of the 7000 national banks on the same date; the loans compare equally well, while the bonds held by savings banks greatly exceeded the bonds and other securities held by all national banks, including United States bonds securing circulation. Savings deposits comprised 26.5 per cent. of all individual deposits in the United States, and equaled 74 per cent. of those in all national banks.

Mutual savings banks numbered 642, all in the New England and Eastern States, except one in West Virginia, 3 in Ohio, 5 in Indiana, 3 in Wisconsin, 10 in Minnesota, and 1 in California. Their aggregate resources comprised almost 85 per cent. of the resources of all savings banks, and their loans 80 per cent., their bonds and other securities, 94 per cent., and their deposits 85 per cent. of those of all savings banks. There were 1,335,256 depositors in mutual savings banks in Manhattan and the Bronx boroughs, New York City, credited with \$743,858,253; 447,768 in those in Brooklyn, with \$216,267,834; 612,516 in those in Boston, with \$208,443,392; and 382,088 in those in Philadelphia, with \$134,403,118. During 1909 mutual savings banks paid interest to the amount of \$114,889,550 on deposits. The average rate of interest paid by all such banks was 3.85 per cent., ranging from 4.5 per cent. in West Virginia to 3.32 per cent. in Pennsylvania.

Stock savings banks making reports numbered 1061, of which 590 were in Iowa, 152 in California and 181 in the Southern States. They had aggregate resources of \$677,784,000, including loans, \$442,998,000, and securities, \$113,738,000. Deposits amounted to \$568,820,000, of which \$250,600,000 were in the California banks. The average interest paid by stock savings banks was 3.6 per cent.

The table on page 640 from the report of the Comptroller of the Currency shows the condition of all savings banks by States in 1909.

In Massachusetts only two banks have adopted the plan for industrial insurance de-

States, etc.	Number of banks	Number of depositors	1909 (1,703 banks) Amount of deposits	Average to each depositor
Maine	52	226,861	\$87,677,255.88	\$386.48
New Hampshire	55	178,440	79,599,246.66	446.08
Vermont	21	104,620	39,442,734.05	377.00
Massachusetts	189	2,002,010	728,224,477.34	363.74
Rhode Island	18	130,281	69,308,516.75	532.19
Connecticut	88	544,664	257,696,998.27	473.13
New England States.....	423	3,186,826	1,261,949,227.95	396.97
New York	137	2,760,343	1,405,799,067.63	509.28
New Jersey	28	297,926	98,549,807.29	330.78
Pennsylvania	11	452,487	166,095,385.22	367.07
Delaware	2	25,380	9,139,669.77	360.11
Maryland	48	247,445	89,961,898.33	363.56
District of Columbia	12	54,069	11,101,116.83	205.31
Eastern States	238	3,837,650	1,780,646,935.06	463.99
Virginia	23	33,349	9,583,957.91	287.35
West Virginia	11	42,189	8,195,002.70	194.24
North Carolina	24	44,783	7,349,823.24	164.12
South Carolina	28	30,476	9,560,910.23	313.39
Georgia	4	35,163	7,832,232.40	222.74
Florida	4	6,295	1,168,190.44	185.57
Alabama	10	13,320	2,019,712.74	151.63
Mississippi	12	7,640	2,047,270.65	267.96
Louisiana	9	60,887	16,429,181.63	269.83
Arkansas	6	5,213	1,157,131.76	221.97
Kentucky	11	17,314	1,996,554.68	115.31
Tennessee	27	48,003	14,039,136.40	292.46
Southern States	182	844,632	81,369,104.73	226.14
Ohio	44	321,809	103,966,942.82	323.07
Indiana	5	32,039	10,917,991.10	340.77
Michigan	15	76,129	31,292,353.48	411.04
Wisconsin	3	6,249	1,146,807.12	183.51
Minnesota	11	92,544	22,503,156.93	243.16
Iowa	572	373,906	136,958,093.18	366.29
Middle Western States	650	902,676	306,785,344.63	339.86
North Dakota	12	7,737	1,750,544.38	226.25
South Dakota	11	16,846	3,261,165.28	192.58
Nebraska	14	20,080	3,552,705.43	176.92
Kansas	8	4,067	3,368,991.30	828.37
Montana	1	700	222,113.00	217.30
Wyoming	10	17,304	3,895,021.08	225.09
Colorado	4	1,575	409,512.54	260.00
New Mexico	55	68,309	16,460,053.01	240.96
Western States	55	68,309	16,460,053.01	240.96
Washington	11	14,685	4,507,943.37	306.97
Oregon	6	3,339	1,890,229.00	566.10
California	131	443,334	250,915,736.56	565.97
Idaho	4	1,217	336,486.21	276.48
Utah	3	29,195	8,544,649.26	292.67
Pacific States	155	491,770	266,195,044.43	561.63
Total United States.....	1,703	8,831,863	3,713,405,709.80	420.45

partments provided for in the law of 1907. These are at Whitman and Brockton. For the year ending October 31 these two banks issued a total of 3000 policies, of which 2521, involving insurance amounting to \$992,761, were in force at the end of the year. Only one death claim was paid; but in sharp contrast to the usual industrial insurance this claim for \$500 was paid at once in full, although the policy was in force less than six months. A policy of equal cost in one of the large industrial insurance companies would have netted the beneficiary only \$192. Most of the business has come from large industrial concerns that have given the matter personal attention.

SCHOOL SAVINGS BANKS on January 1, 1909, were found in 114 cities in the United States, Canada, and South and West Australia. There were 6765 banks in 1163 schools, with aggregate deposits of \$747,905. The average deposit was

\$3.98. The aggregate deposits in such banks since the beginning of the system was \$4,609,431.

From compilations of the Bureau of Statistics the table on savings banks throughout the world on page 641 was prepared. It includes postal savings banks (q. v.) as well as private. As compared with a table for the same countries at dates two years earlier, this table shows an increase of 8,954,000 in the total number of depositors, and of \$1,339,000,000 in aggregate savings deposits. In this time Germany showed an increase of 1,364,000 in the number of depositors and of \$360,000,000 in savings deposits; Russia, an increase of 1,028,000 depositors, and of \$90,500,000 deposits; and the United Kingdom, an increase of 1,112,000 depositors, and \$37,000,000 deposits. The following countries have the greatest numbers of saving depositors per 1000 of their population: Switzerland, 491; Denmark, 477; New Zealand, 400; Norway, 377;

Country	Date of report	Number depositors	Deposits	Average deposit account	Average deposit per inhabitant
Austria	1906-7	5,856,091	\$1,114,558,951	\$190.22	\$40.53
Belgium	1908	2,624,991	171,044,463	65.16	23.63
Bulgaria	1907	201,956	6,496,913	32.16	1.59
Chili	1908	198,419	22,876,142	115.29	6.73
Denmark	1907	1,240,739	192,274,881	154.97	73.95
Egypt	1908	86,728	1,986,755	22.91	.18
France	1907	12,847,599	961,355,347	74.83	24.48
Algeria	.....	19,052	904,582	47.48	.17
Tunis	.....	5,415	1,080,413	199.52	.60
Germany	1906	18,658,460	3,191,882,000	171.07	51.79
Luxemburg	1907	61,049	10,443,220	171.06	42.45
Hungary	.....	1,699,011	395,072,672	232.53	19.11
Italy	.....	6,953,078	667,645,797	96.02	19.69
Japan	1906-8	14,471,560	99,289,016	6.86	2.01
Formosa	1906-7	74,635	754,453	10.11	.24
In China and Corea	1906-7	61,611	910,889	14.71	.....
Netherlands	1906-7	1,658,985	93,214,669	56.19	16.43
Dutch East Indies	.....	66,523	5,359,446	80.55	.14
Curacao	.....	3,250	51,310	15.79	.98
Dutch Gulana	1907	7,214	280,162	38.84	8.46
Norway	.....	868,614	115,274,498	132.71	49.67
Rumania	1907	191,070	11,335,516	59.33	1.70
Russia (including Asiatic part)	1909	6,698,405	623,820,633	93.20	4.15
Finland	1907	313,524	38,602,900	123.13	13.16
Spain	.....	438,113	40,237,022	91.84	2.04
Sweden	1907	2,027,371	196,868,900	94.17	34.81
Switzerland	.....	1,768,948	279,848,800	158.21	78.63
United Kingdom	1908	12,806,284	1,032,470,204	80.70	28.08
British Colonies:					
British India	1908	1,262,763	49,253,632	39.00	.21
Australian Commonwealth	.....	1,333,909	224,575,782	168.36	53.04
New Zealand	1907	364,422	62,413,169	171.27	66.26
Canada	1909	190,926	58,483,656	306.32	8.14
British South Africa	.....	191,754	22,153,520	115.53	4.15
British West Indies	.....	82,665	5,764,788	69.74	3.32
British Colonies n. e. s.	.....	194,197	11,852,534	61.03	.78
Total foreign countries	.....	95,524,331	9,710,936,635	101.66	11.89
United States	1909	8,831,863	3,713,406,709	420.45	41.87
Philippine Islands	1909	8,782	724,479	.....	.....
Grand total	.....	104,364,976	13,425,066,623	82.49	.....

* Exclusive of data for special private savings banks, which on June 30, 1909, held deposits amounting to \$30,258,585. This total does not include the savings deposits in chartered banks ("deposits payable after notice or on a fixed day"), which on June 30, 1909, amounted to \$455,178,476.

Sweden, 375; France, 329; Germany, 310; Australian Commonwealth, 330; Netherlands, 290; United Kingdom, 284; Austria, 217; United States, 100.

SCENIC AND HISTORIC PRESERVATION SOCIETY, AMERICAN. A society incorporated in 1895 for the protection of the beauties of natural landscapes from disfigurement; the preservation of geological formation, and the saving from obliteration of all names, places and objects identified with national, State or local history. The society is required to report annually to the New York Legislature, and thus occupies a quasi-official position. It has the custody of five State properties, Stony Point battlefield, Watkins Glen, Letchworth Park, Fort Brewerton and Philipse Manor Hall. The most interesting events in the history of the society during 1909 were connected with the Hudson-Fulton celebration in which it took a leading part. An exhibition, entitled *Three Centuries of New York*, was held at the National Arts Club under the general auspices of the society and the National Arts Club. The Ft. Tryon monument on Ft. Washington Avenue was dedicated during the year, as was a memorial arch on the Stony Point battlefield, under the joint auspices of the society and the New York City Society of the Daughters of the Revolution. The society had in 1909, 600 mem-

bers. The Honorary President is J. Pierpont Morgan; President, George F. Kunz, and Secretary, Edward Hagaman Hall.

SCHOOLS. See EDUCATION IN UNITED STATES.

SCHOOLS, AGRICULTURAL. See AGRICULTURAL EDUCATION.

SCHOOLS, FOREST. See FORESTRY.

SCHOOLS, PROFESSIONAL. See PROFESSIONAL SCHOOLS.

SCHOOL SAVINGS BANKS. See SAVINGS BANKS.

SCHULTZ, ALWIN. A German art critic and historian, died March, 1909. He was born in 1838, and studied archæology and Germanic philology at Breslau, where he established himself as docent for art history in 1866. In 1872 he was appointed professor of art history in that university, and in 1882 was appointed to a similar position at the University of Prague. His most important publications include: *Schlesiens Kuntsleben im 13. bis 18. Jahrhundert* (1870-72); *Die Legende vom Leben der Jungfrau Maria und ihre Darstellung in der bildenden Kunst des Mittelalters* (1878); *Das höfische Leben zur Zeit der Minnesinger* (2d ed. 1889); *Kunst und Kunstgeschichte* (2d ed. 1901); *Deutsches Leben im 14. und 15. Jahr-*

hundert (1892); and *Allgemeine Geschichte der bildenden Künste* (1894 et seq.).

SCIENCES, NATIONAL ACADEMY OF. A society organized for the examination and investigation of any subject of science or art, and for making reports at the call of the United States government, the actual expenses of such examination and report to be paid out of the appropriation made for that purpose. It was incorporated by Act of Congress, May 3, 1863. The Academy can, under no circumstances, receive compensation from the government for its services. Annual reports are made each year at the meetings which are held at such places in the United States as may be specially designated. The autumn meeting of 1909 was held at Princeton University, November 16-18. The Academy is composed of members, honorary members and foreign associates. The foreign associates are limited to 50. The officers are elected for six years. In 1909 they were as follows: President, Ira Remsen; Vice-President, Charles D. Walcott; Foreign Secretary, Alexander Agassiz; Home Secretary, Arnold Hague; Treasurer, S. F. Emmons.

SCOTLAND. See GREAT BRITAIN.

SCOTT, GUY CHARLES. An American jurist, died May 24, 1909. He was born in Henderson county, Ill., in 1863, and was educated in the public schools and at Knox College. He was admitted to the bar in 1886. From 1895 to 1899 and from 1901 to 1903, he was Mayor of Eledo, Ill. He was appointed Justice of the Supreme Court of Illinois in 1903, and in 1906-7 was Chief Justice.

SCULPTURE. The greatest achievement to the credit of American sculptors in 1909 was the completion of part of the colossal work for the decoration of the new building of the Brooklyn (N. Y.) Institute of Arts and Sciences. The plans of the architects, Messrs. McKim, Mead and White, provided a number of quadrants to be adorned on the outside of the building with statuary. Professor Franklin W. Hooper, in consultation with Daniel C. French, decided upon eighty-six statues, all monoliths. Thirty of the statues were unveiled during the year, and the whole series is now complete, if not yet in place.

Mr. French undertook the general supervision of the work and contributed the great central figures of Science, represented by a man, and Art, represented by a woman. From his studio also came subsidiary figures of Sculpture. Painting and Architecture, and three figures typifying Greek art. Augustus Lukeman was responsible for four Jewish figures—Lawgiver, Psalmist, Prophet and Apostle; Karl Bitter did the Chinese Philosopher, Religion, Art and Law; and Charles Keck and Edward C. Potter the Indian figures. Miss Janet Scudder, the only woman honored with a commission, made the statue symbolizing Japanese art. Other artists represented are George T. Brewster (Greek Drama); Kenyon Cox (Greek Science); John Gelert (Roman subjects); Charles A. Heber, Edmund T. Quinn and the late Attilio Piccirilli.

No important exhibition of sculpture was held in New York City during the year owing, partly, to the lack of a suitable hall for that purpose. At the spring Academy in New York Mr. Augustus Lukeman showed a life-size "Finding of Moses," and there was a spirited

group, "Colts in Snowstorm," by Miss Anna V. Hyatt.

Among the American sculpture of some importance unveiled and exhibited during the year were Melvin E. Cummings's Robert Burns, in San Francisco; Karl Bitter's Senator Quay, at Harrisburg (State-house); Augustus Lukeman's Dr. Henry, at Princeton University; A. A. Weinmann's Lincoln, at Hodgenville, Ky., and Soldiers' Monument, at Baltimore, Md.; H. H. Kitson's Stephen D. Lee, at Vickburg; William Couper's Longfellow, at Washington; Paul Bartlett's Michael Angelo, at East Aurora, N. Y.; Lorado Taft's Indian Fountain, at Paducah, Ky., and E. V. Valentine's General Lee, at Washington; and Gutzon Borglum's remarkable head of Lincoln.

During the year the National Sculpture Society organized a circulating exhibition of 200 small bronzes, which were shown in Buffalo and Pittsburg, and will be sent to other cities.

In France Auguste Rodin's Victor Hugo, in the garden of the Paris Palais Royal, was hailed as a masterpiece. A colossal work by Paul Moreau Vanthier, at the Salon des Artistes Français, typified the horrors of the Revolution. A stone wall, forty feet long and ten feet high, was covered with spectral figures in agony, while at the foot of the wall were the dead bodies of War's victims. At the other Paris Salon of the year, the American aëroplanists, the Wrights, were glorified by Carvin in busts, and also in a "Muse of Aviation." The American sculptors represented at this Salon were Paul Bartlett, Andrew O'Connor (statue of Lew Wallace), and Richard E. Brooks, who showed a bust of Seward for Seattle and one of Roger Ludlow for the Capitol at Hartford, Conn.

SCULPTURE SOCIETY, NATIONAL. A society incorporated in 1896 for the purpose of spreading the knowledge of good sculpture, fostering the taste for ideal sculpture and its production, the promotion of the decoration of public and other buildings, and the improvement of the quality of the sculptor's art as applied to the industries. The Society had in 1909 about 250 members, of whom about 100 were sculptor members, whose work had to pass a special committee before they could be recommended to election. During 1909 the Society inaugurated a plan of a circulating exhibition of small bronzes to be carried on during 1909 and 1910. These exhibitions are to be held in Buffalo, Pittsburg, St. Louis and Chicago. The honorary president of the society is J. Q. A. Ward. The president is Herbert Adams; vice-presidents, John M. Carrère and Isidore Konti; secretary, J. Scott Hartley.

SEATTLE CANAL. See CANALS.

SEELEY, HARRY GOVIER. An English geologist and mineralogist, died January 8, 1909. He was born in London in 1839, and was educated at Sidney Sussex College, Cambridge. From 1860 to 1870 he was assistant to Professor Adam Sedgwick; in 1876 became professor of geography in King's College; 1880-90, University Extension lecturer; and from 1885 to his death lecturer for the Gilchrist Educational Trust. He was also dean of Queen's College, London, and examiner in geology, University of London. Dr. Seeley gave instruction also in universities in Australia and New Zealand. He made many notable fossil discoveries in the antipodes. Among his writings are: *Index to Fossil Re-*



Copyright, 1900, by Gutzon Borglum

"Abraham Lincoln"
GUTZON BORGLUM



"Greek Religion" – One of Thirty Statues for the Brooklyn Institute
DANIEL C. FRENCH

AMERICAN SCULPTURE

mains of Aves, Ornithosauria, Reptilia (1869); *Fresh Water Fishes of Europe* (1886); *Factors in Life* (1887); *Dragons of the Air* (1901). He contributed many monographs and articles to the *Transactions of the Royal Society* and other learned bodies.

SEISMOLOGY. Sea EARTHQUAKES.

SELBY, WILLIAM COURT GULLY, VISCOUNT. A British public official, died November 6, 1909. He was born in London in 1835 and was educated at Trinity College, Cambridge. In 1860 he became a barrister and in 1877 was appointed Queen's Counsel. He became in 1879 a Bencher of the Inner Temple. From 1886 to 1895 he was Recorder of Wigan. He became a member of Parliament in 1880 and from 1895 to 1900 was Speaker of the House of Commons. During this time he was member of Parliament from Carlisle. He was created viscount in 1905.

SENDEN-BIBRAN, GUSTAV E. O. E. von. A German admiral, died November 23, 1909. He was born in Lower Silesia in 1847 and entered the German navy in 1862. He commanded the battleship which escorted the Kaiser on his northern trip in 1899 and in 1892 was made rear-admiral. He was made vice-admiral in 1899 and admiral in 1903. He was head of the marine cabinet from 1899 to 1906. He retired from active service in 1907.

SENEGAL. A French colony, the oldest and most important of French West Africa (q. v.). Area, 73,973 square miles. Population, 393,945. Capital, St. Louis (population, 1904, 24,070). Dakar, the seat of the Governor-General of French West Africa, had 18,447 inhabitants; Rufisque, 12,446; Goree, 1560. The natives of these towns are French citizens, entitled to vote. The natives of the territories of direct administration (in which the government exercises absolute authority) are not French citizens and have no vote. The former protectorate, now restored to the colony, retains its separate budget. There were in 1906 34 official schools, with 3431 pupils, and 5 private Roman Catholic schools, with 161 pupils. There is a technical school at Dakar, and at St. Louis a commercial school and a normal school. The natives cultivate ground-nuts, milled corn and rice; castor-beans, cocoanuts, gum and rubber are also produced. The ground-nut crop was reported unusually abundant in 1909. Weaving and pottery and brick-making are the principal native industries. The imports and exports, including those of Upper-Senegal-Niger, which pass through the ports of Senegal, amounted in 1907 to 54,698,406 (France, 30,895,000) francs and 43,858,850 (France, 32,681,000) francs, respectively. The trade in 1908 was reported as showing a steady development, largely due to railway extension. Cotton textiles (1908) were reported as amounting to 35 per cent. of the imports. A railway has been constructed from Dakar to Rufisque, and thence northwest to St. Louis at the mouth of the Senegal River (165 miles), and from Kayes on the same river a narrow-gauge line (347 miles) runs to Konlikoro, on the Niger. There are 1743 miles of telegraph and 287 miles of telephone lines. Direct cables connect Dakar with Brest and Teneriffe. There were (1907) 48 post-offices. There is river service during the rainy season from St. Louis to Kayes. Works are in prog-

ress for harbor improvement at Dakar, the principal port. In 1906, 546 vessels of 706,606 tons entered, and 559, of 720,815 cleared, at the ports. The Bank of Senegal at St. Louis has been fused with the Bank of French West Africa. The Lieutenant-Governor of Senegal is under the direction of the Governor-General of French West Africa. The colony sends one deputy to the French Chamber.

SEPP, JOHANNES NEPOMUK. A German Catholic historian, died in June, 1909. He was born in Tölz, Bavaria, in 1816. After several years devoted to the study of philosophy and in travel in the East, he became professor of history in the University of Munich. He was deposed in 1847, was reinstated in 1850, and retired in 1867. In 1848 he was elected to the Frankfort parliament, and in 1868 was a member of the German Customs parliament. He was a member, also, of the Bavarian Chamber in 1849 and 1869. Dr. Sepp was a historian of great attainments, but he was more widely known through his opposition to the influence of the notorious Lola Montez in the Bavarian University in the time of Ludwig I. of Bavaria. Among his writings are: *Das Leben Jesu Christi* (2d. ed. 1853-62); *Thaten und Lehren Jesu in ihrer weltgeschichtlichen Beglaubigung* (1864); *Jerusalem und das Heilige Land* (2d ed. 1876).

SERGIEV, IVAN ILYTCH, better known as John of Kronstadt. A Russian priest, died January 2, 1909. "Father John," as he was familiarly called, was, for over forty years, one of the most notable figures in the religious history of Russia. He came of the peasant class and was born in Archangel. Even before he took his degree in divinity at St. Petersburg in 1855 he had become known as a profound scholar and a brilliant theologian. His eloquence and zeal as a preacher soon won for him an immense following throughout the country. His fame as a "healer" was even greater than his renown as a preacher. He is said to have performed marvellous cures for mental and physical ailments. People of all classes came to him for help, and with the money that came in abundance he founded numerous charitable institutions and distributed relief on a large scale. The Emperor Alexander III. summoned Father John to his death bed, and Nicholas II. bestowed many honors and decorations upon him. His last years were clouded by the sacrilegious performances of spurious sects called after him "Johannites," and by unwise excursions into the field of politics. His hold on the common people, however, remained unbroken, and at his funeral 20,000 mourners followed his body to the grave in St. Petersburg.

SERUM THERAPY. The value of serum treatment in epidemic cerebrospinal meningitis was confirmed in 1909. The Flexner anti-meningococcic serum prepared at the Rockefeller Institute in New York was used in the epidemic which raged in Paris in the early part of the year. In this epidemic Netter treated 69 cases with the serum with a mortality of only 20 per cent. The injection was made into the spinal canal, or in some cases where this was impossible, into the lateral ventricles of the brain. Repeated injection was necessary. It is stated that not only is the mortality greatly reduced, but the succeeding complications which characterize this disease were ren-

dered very infrequent. Flexner collected 712 cases in which bacteriologic diagnosis was first made, and the serum treatment employed. The average mortality in this series was 31.4, whereas the average death rate under other methods of treatment ranges from 60 to 90 per cent. An analysis of these cases shows conclusively that the serum is more efficacious in early life, and that its curative value is in proportion to the promptness with which it is given after the onset of the attack. It is to be noticed that the serum is efficacious only in meningitis due to the *Diplococcus intracellularis*; while streptococcus, pneumococcus, and tubercular infections of the meninges are uninfluenced. Tetanus antitoxin, according to the best available evidence, proved to be of great value as a prophylactic, but very uncertain as a curative agent. When injected in cases infected with the tetanus bacillus, before the disease actually developed, the serum is as certain a preventive as any specific can be. Veterinarians have found that by its routine use in stables in which tetanus was always present and sometimes epidemic horses could be kept free from the disease. One stable where tetanus antitoxin was injected prophylactically in all horses injured about the feet, had no case of tetanus in 5 years.

SERVIA. A constitutional monarchy lying south of Hungary, between Bosnia and Bulgaria. Capital, Belgrade.

AREA, POPULATION, ETC. Area, 18,649 square miles. Population (1900), 2,493,882 (agricultural population, 2,093,947); estimated December 31, 1908, 2,824,844. There were (1908) 25,890 marriages, 103,903 births, 66,924 deaths. Population (1905) of Belgrade, 77,816; Nisch, 21,946; Kragujevatz, 15,596. Primary education is free, state-aided, and nominally compulsory; but attendance does not exceed 25 per cent. of the population. Elementary schools (1906), 1243, with 2339 teachers and 129,360 pupils. Secondary, 20 with 347 teachers and 6061 pupils; normal 4, with 26 teachers and 391 students. Special schools are few; Belgrade University had (1906) 780 students. The Greek-Orthodox is the state religion.

AGRICULTURE, ETC. Servia is essentially an agricultural country. Of the total area (1904) 1,865,392 hectares were under cultivation and 1,546,000 under wood and forest. The area under the principal crops in 1907, and the yield in 1906 and 1907 are given below:

Crop	Hectares 1907	Quintals 1906	Quintals 1907
Corn	549,728	7,057,909	4,493,747
Wheat	367,603	3,595,433	2,279,359
Barley	101,268	1,056,469	683,002
Oats	96,124	673,748	433,128
Hemp	13,809	82,391	62,013
Flax	2,497	7,000	7,264
Meadow & grasses.	318,165	5,345,854	2,894,952
Plums	188,884	3,443,802	2,882,750

* Fibre.

In 1906, 34,804 hectares were under vines, and 2041 under tobacco; 10,985 persons were engaged in silk culture. There were (December 31, 1905) 969,953 cattle, 3,160,166 sheep, 174,363 horses, 908,108 swine, and 510,063 goats. The forests, improperly managed, yield a profit small in proportion to their value.

Coal and lignite are worked by the government, and by private companies (some Bel-

gian). Total output in 1906, 2,375,067 metric tons. Gold, copper, zinc, lead, antimony, silver, iron, quicksilver, asbestos, arsenic, etc., occur. The development of the mines is hindered by bad roads and poor railway facilities. Flour-milling, brewing, distilling, sugar-milling, weaving, tanning, pottery-making and iron working are the chief manufacturing industries.

COMMERCE. The commerce, exclusive of transit, for three years is given below, in dinars:

	1906	1907	1908
Imports.....	44,328,642	70,583,327	75,635,000
Exports.....	71,604,098	81,491,262	77,749,000

The chief imports for home consumption were: Raw materials and textiles, 23,962,000 dinars; metals, 13,916,000; food-stuffs and liquors, 13,294,000; machinery and implements, 9,161,000; paper, 2,190,000. Exports of domestic produce: Agricultural, animal, and forest products, 70,509,000 dinars; metals, 3,645,000; textiles and raw materials, 1,873,000; minerals, 1,347,000; drugs, chemicals, and colors, 273,000. There is a large export of plums and plum products. The trade by countries for two years is given below in dinars:

	1907	
	Imports	Exports
Austria-Hungary	25,599,946	12,032,350
Germany	20,320,391	32,925,622
Great Britain	10,220,270	2,337,455
Turkey	3,326,512	4,379,351
Italy	2,299,498	4,898,867
Belgium	755,696	13,010,853
France	2,428,503	2,704,410

	1908	
	Imports	Exports
Austria-Hungary	32,152,000	21,501,000
Germany	21,361,000	14,019,000
Great Britain	8,803,000	499,000
Turkey	3,147,000	10,968,000
Italy	2,272,000	3,490,000
Belgium	1,602,000	16,134,000
France	1,563,000	3,043,000

COMMUNICATIONS. The one railway line, with its branches, has a length of 390 miles. There are 3405 miles of highway, in a bad state of repair; 2140 miles of telegraph lines, 5042 of wire; 175 state telegraph offices; 1090 miles of telephone line and 55,030 of wire; in 1908, 1493 post-offices.

FINANCE. The unit of value is the dinar, worth 19.3 cents. The revenue and expenditure for four years (1907, 1908 and 1909 budget) are as follows:

	1906	1907
Revenue.....	91,270,375	90,452,752
Expenditure.....	87,335,650	90,387,227

	1908	1909
Revenue.....	95,239,038	103,644,104
Expenditure.....	95,091,253	103,323,645

The principal sources of revenue in 1909 were estimated as follows: Direct taxes, 29,117,350 dinars; monopolies, 28,045,726; customs, 11,343,900; state railways, 10,700,000; domains, 6,372,645; excise, 6,000,000. Principal items of expenditure: War, 27,044,930; service of the debt, 26,984,913; public works, 11,612,529;

finance, 10,304,276; pensions and grants, 4,745,355. The debt stood, January 1, 1909, as 541,376,000 dinars. The National Bank of Servia has a nominal capital of 20,000,000 dinars (paid-up, 66,500,000); note circulation (December 31, 1907), 37,362,927; cash on hand, 14,105,842 gold, 7,434,967 silver.

ARMY. The Servian army is organized in three lines with compulsory service. The first line consists of the regular army and its reserve numbering 3200 officers and 120,000 men, though ordinarily maintained at a skeleton strength of about 24,000 with an increase of 10,000 in the summer for manœuvres. It comprises 5 divisions of infantry, 1 division of cavalry, 2 battalions of fortification artillery, 1 regiment of pioneers, 60 battalions of infantry, 20 squadrons (not including 10 division squadrons), 50 field batteries (42 mounted, 2 horse, 6 mountain), 5 batteries (shell) and 1 mortar battery. The second line estimated at 2000 officers and 75,000 men, comprises 5 divisions of the reserve or 60 battalions, 10 division squadrons, and 20 batteries. The third line, estimated at 1000 officers and 55,000 men, includes 45 battalions of infantry, 5 squadrons, and 5 companies of artillery. In addition there is a gendarmerie of 32 detachments (frontier forces). During 1909 75 mm. (3-inch) field guns with which the artillery was being armed were being issued.

GOVERNMENT. The executive is the King, who is assisted by a council of eight responsible ministers. The legislative power resides in the unicameral National Assembly (Narodna-Skupschtina) of 160 deputies popularly elected. The present King, Peter I. (Karageorgevich), born 1844, was elected to the throne June 15, 1903. Heir-apparent, Prince Alexander, born 1888. The Council of Ministers as composed October 11 (24), 1909, is as follows: President of the Council, N. P. Pasich; Interior, Lubomir Yovanovich; Public Instruction, Yovan Zorezovich; Foreign Affairs, Milovan Milanovich; Finance, S. M. Protitch; War, Col. M. Marinovich; Commerce, etc., Yasha Prodanovich; Public Works, V. Voulovich; Justice, K. Timotievich.

HISTORY. The outstanding event of the year was Servia's quarrel with Austria-Hungary, which at one time threatened war (see BALKAN QUESTION). A report of a speech by the Premier, Milanovich, on January 3, intensified the ill-feeling between the two countries. He was said to have declared that the Balkans were for the Balkan peoples and that Austria-Hungary alone menaced this principle. The Austrian government demanded an explanation and threatened the recall of its Minister. Premier Milanovich declared that he had been misrepresented. He twice resigned and his resignation was refused, but finally, on January 17, was accepted. A coalition Ministry was formed under M. Novakovich, the leader of the Progressives, as Premier, with M. Milanovich as Minister of Foreign Affairs. King Peter had acted promptly in the matter, demanding such a patriotic coalition which should serve until the crisis with Austria-Hungary was over. This crisis was made the occasion in internal politics for violent attacks on the dynasty on the charge of being indifferent to the misfortunes of the nation and of having failed in its duties. On March 27 the renunciation of the throne by the Crown Prince was received in

the Servian Cabinet and on the following day in the Skupschtina, together with a letter from King Peter accepting the renunciation and naming as his heir his second son, Alexander. The Crown Prince's course was due to the popular rumor that he had caused the death of his valet. The valet's deposition, however, was reported to have declared that the injury resulted from falling down the palace stairs, which were not lighted. The trial of prisoners charged with being spies in the Austro-Hungarian service resulted on June 23 in the sentence of two of them to five months' imprisonment and in the acquittal of five. The visit of King Ferdinand of Bulgaria (q. v.) to Servia in October was hailed as a step toward the restoration of the friendly relations which had been impaired by the violation of the customs convention between the two countries. Before his arrival the Novakovich Cabinet resigned, and was immediately succeeded by a new Ministry under M. Pasich, M. Milanovich retaining his portfolio as Minister of Foreign Affairs.

SEWAGE PURIFICATION. There was comparatively little change in sewage purification theory and practice of 1909. New works for treating sewage were undertaken or projected at many places at home and abroad, but in general these followed well-known lines. The disinfection of partly clarified sewage by bleaching powder, seemed to increase in favor during 1909, but only small installations for this purpose have yet been made. The action sought is germicidal. For the present, at least, disinfection is more suitable for water treatment than sewage treatment. (See WATER PURIFICATION.) Under the vigorous promptings of the Pennsylvania State Department of Health many of the cities of that State are investigating sewage disposal. Philadelphia has established a sewage experiment station to study the applicability of various methods to local conditions. The New Jersey State Board of Health, like the Pennsylvania department just named, has warned many communities that they must stop polluting streams or the ocean within specified periods, and as a result many small plants have been built in the State. In Canada, Toronto has begun work on septic tanks for the partial purification of the sewage before it is discharged into Lake Ontario. See also SEWERAGE, particularly for German and French statistics.

SEWERAGE. With relatively few exceptions all but the smaller cities and towns of the United States and other progressive countries have provided themselves with more or less extensive and adequate sewerage systems. The most notable exception is Baltimore, but that city is now building an extensive sewerage and sewage disposal system at a cost of many million dollars. Concrete and reinforced concrete are growing in favor as materials for the larger sizes of sewers. Figures showing the extent of sewerage systems in the largest cities of the United States in 1907 were included in a U. S. census bulletin on *Statistics of Cities*, compiled in 1909.

FRANCE AND GERMANY. Comparative statistics of sewerage and sewage disposal in France and Germany were published in *Revue d'Hygiène et de Police Sanitaire* (Paris) for October, 1909. The figures were compiled by Dr. Ed. Imbeaux, Director of Municipal Service,

Nancy, France, and were based on the German and French water-works manuals, *Die Städtische Obwasserseitung in Deutschland* and *Annuaire des Distributions d'Eau*. The French figures were for January 1, 1909, but the German ones were at least two years older, which emphasizes the comparative backwardness of France. For both countries only cities of 5000 inhabitants or over were considered. In Germany, of 719 cities, 193 had good sewerage systems, 63 had partial systems, and 151 had storm water sewers only. Of the 312 cities without sewers 174 had projects for sewers under way. Of the 256 good and partial sewerage systems in Germany 116 have been built since 1900. In France, of 643 cities 66 cities had storm water and house sewers, 257 had storm sewers, only (mostly old and inefficient), and 320 cities, or 50 per cent., had no sewers whatever.

Of the 256 German cities with complete or partial sewerage systems all but 62 reported some measure of sewage purification, but apparently only a portion of the sewage is treated. In some cases the degree of purification attempted is widely variable, for 90 report mechanical separation, which in 11 cases means screening only; 47 report broad irrigation; 38 report biological purification; 8 a combination of mechanical separation and chemical precipitation; 7 house purification systems, and 4 intermittent filtration. In France, Paris and Rheims employ broad irrigation or sewage farming on a large scale and 27 other cities use the same method in varying extent; 5 cities employ biological processes; 4 discharge sewage into the city and the 38 remaining cities, of the 66 with complete sewerage systems, discharge into near-by streams. See also SEWAGE PURIFICATION.

SHACKLETON, ERNEST HENRY. An Antarctic explorer, who, on January 9, 1909, approached within 111 statute miles of the South Pole. (See POLAR RESEARCH.) He was born in Ireland in 1869. He attended Dulwich College in 1886, but left in 1889 before completing

the course. Following his natural bent he went to sea, and circumnavigated the world four times. During the South African war he took part in the transport of troops. In 1901 he was chosen as third lieutenant in the Antarctic expeditions of that year, under Captain A. A. Scott, and he was a member of the party which approached nearest the Pole. On his return home, 1904, Lieutenant Shackleton was appointed secretary to the Scottish Geographical Society. In 1906 he resigned, to contest a parliamentary seat for Dundee, but was defeated. He organized, in 1907, an Antarctic expedition, with the steamer *Nimrod* as transport. Explorations were carried on during 1908, and on October 29 of that year preparations were completed for the rush to the Pole. A fierce blizzard prevented final success, and the party was obliged to turn back. For an account of the results of the expedition, see the article POLAR RESEARCH. He was made C. V. O. in 1909.

SHANLEY, JOHN. An American Roman Catholic prelate, Bishop of Fargo, S. D., died July 16, 1909. He was born at Albion, N. Y., in 1852. His family removed to St. Paul, Minn., in 1857. After a course of study in the College of Propaganda, Rome, he took his ordination vows in 1874. He was for a year assistant pastor at the Cathedral of St. Paul, and in 1875 became pastor. He was consecrated Bishop of Fargo on December 27, 1889.

SHEEP. See STOCK RAISING.

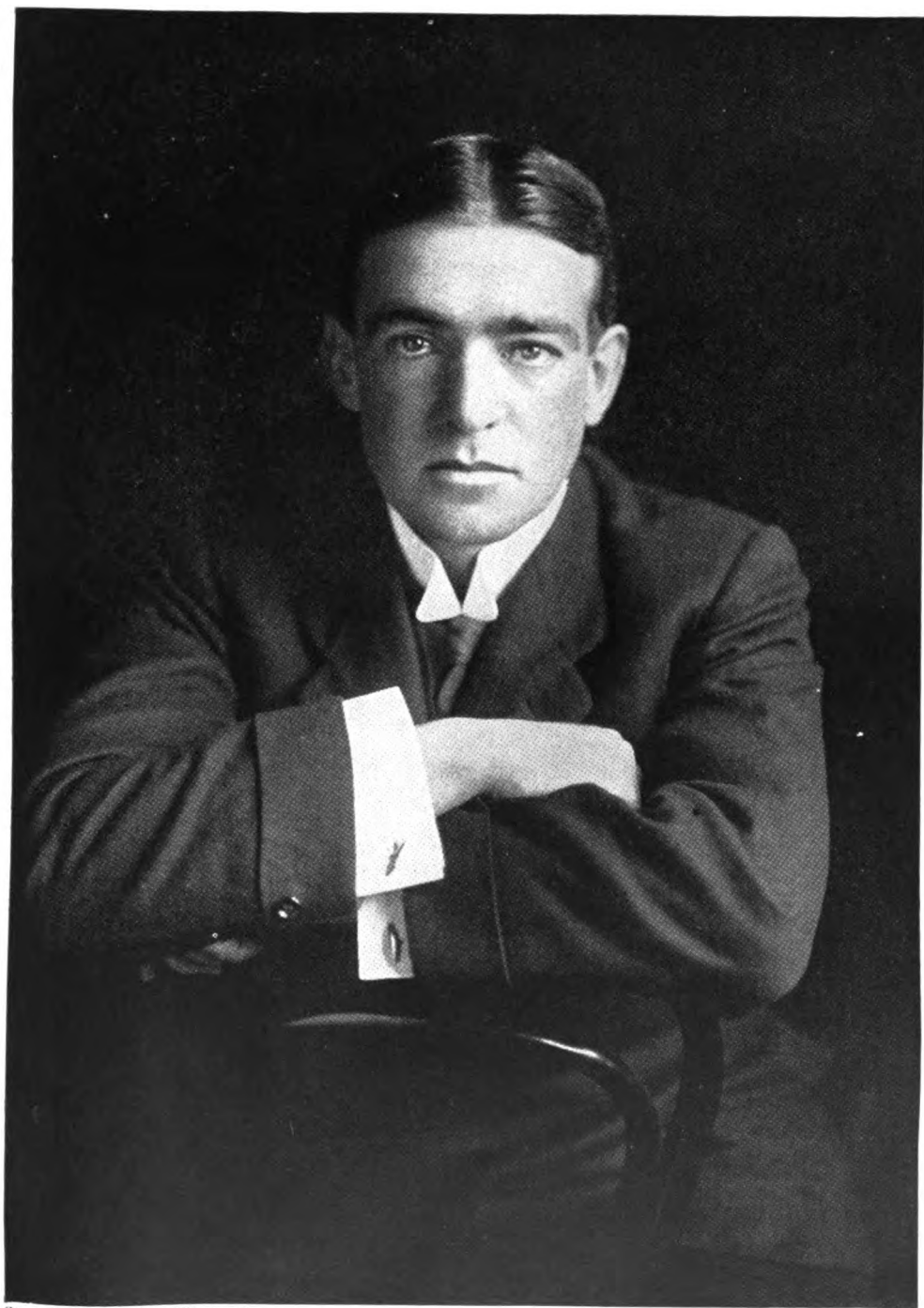
SHIPBUILDING. Lloyd's returns of shipbuilding launched in 1909 as abstracted in *Engineering* (London), showed that in the twelve months there were launched for the respective navies throughout the world 151 fighting ships of various types, each exceeding 100 tons, with a collective displacement of 404,475 tons. This total was nearly 100,000 tons more than in 1908, and 50,000 tons more than the average of the four preceding years. In 1901, however, 123 vessels, of 487,547 tons, were put into the water, and in 1904, 435,006 tons was the complete displacement of the 102 vessels of that

TABLE SHOWING THE TONNAGE OF VESSELS OF 100 TONS GROSS AND UPWARDS (EXCLUDING WARSHIPS) LAUNCHED IN THE UNITED KINGDOM AND ABROAD DURING THE YEARS 1906-1909.

Year	United Kingdom	Austria Hungary	British Colonies	Denmark	France	Germany	Holland	Italy	Japan	Norway	United States	Other Countries	Totals
	tons	tons	tons	tons	tons	tons	tons	tons	tons	tons	tons	tons	No. tons
1906	1,828,343	18,590	26,042	24,712	35,214	318,230	66,809	30,560	66,254	60,774	441,087	26,913	1836 2,919,763
1907	1,607,890	8,717	46,443	28,819	61,635	275,003	68,623	44,666	59,725	57,556	474,675	37,807	1788 2,778,086
1908	929,669	23,502	34,181	19,172	83,429	207,777	58,604	26,864	52,319	52,839	304,543	32,981	1405 1,833,288
1909	991,066	25,006	7,461	7,508	42,197	128,696	59,106	31,217	52,319	28,601	209,604	19,276	1063 1,602,057

TABLE SHOWING THE NUMBER AND DISPLACEMENT OF WARSHIPS OF 100 TONS AND UPWARDS LAUNCHED FOR THE VARIOUS NAVIES DURING THE YEARS 1906 TO 1909

Year	British	American (United States)	French	German	Italian	Japanese	Russian	Other Flags	Total
	tons	tons	tons	tons	tons	tons	tons	tons	No. tons
1906	85,700	45,442	15,183	62,678	3,039	41,277	82,204	27,448	148 362,972
1907	133,405	11,590	33,594	14,800	25,154	57,200	35,317	10,151	142 321,211
1908	49,560	52,850	21,600	97,660	29,400	2,245	8,800	47,574	127 309,689
1909	98,790	48,639	95,740	99,116	2,088	375	1,246	58,481	151 404,475



Courtesy of the "Review of Reviews"

SIR ERNEST HENRY SHACKLETON, C. V. O.
ANTARCTIC EXPLORER

year. The figures in the accompanying tables show that the additions to the British fleet in 1909 constituted about one-fourth of the total for the world. Moreover, a greater tonnage was added to the German fleet, while the tonnage of the new French ships launched came within 3000 tons of the British output, the figures being: For Germany, 27 vessels, of 99,116 tons; for Britain, 35 vessels, of 98,790 tons; for France, 19 vessels, of 95,740 tons; and for the United States, which comes next, 15 vessels, of 48,639 tons.

AGGREGATE OF PRODUCTION IN THE UNITED KINGDOM
From *Engineering* (London)

	1909 tons	1908 tons	1907 tons
Steamers*	1,131,549	980,600	1,739,200
Sailing ships	25,627	54,200	56,200
Totals	1,157,176	1,034,800	1,795,400
His Majesty's dock-yards	46,320	42,426	51,800
Grand totals ...	1,203,496	1,077,226	1,847,200
Foreign-owned tonnage	317,000	376,600	547,000
Per cent. of total...	25.3	35	30.4
Total merchant tonnage†	1,078,436	992,250	1,714,500
Per cent. of steam merchant tonnage to total merchant tonnage	98	95	96.7
Indicated h.-p. of engines	1,484,810	1,157,140	1,712,180
Per cent. of all naval tonnage to merchant tonnage.....	11.6	7.5	7.75

* Includes warships built in private yards.

† Excludes British and foreign warships.

Six large merchant steamers over 10,000 tons were constructed during the year in British yards. The largest of these was the Union-Castle liner *Balmoral Castle* of 13,000 tons, built by the Fairfield Company, and then came the *Orvieto* and *Otranto*, by Workman Clark & Co., Ltd., of Belfast, and the *Osterley* by the London & Glasgow Engineering and Iron-Shipbuilding Co., Ltd., of Glasgow, each of 12,130 tons for the Orient Line, the three vessels being sister ships of the *Orsova* and *Otway* completed in 1908. The *Mantua* for the P. & O. Line built at Greenock by Caird & Co., of 10,833 tons and the *Ruahine* for the New Zealand Line, built at Dumbarton by W. Denny & Brother, complete the list of British merchant vessels of notable size.

During the year increased interest was aroused in the two leviathan ships under construction at the Harland and Wolff yards, Belfast, Ireland, as work was progressing rapidly. These two vessels for the White Star Line, the *Titanic* and *Olympic*, had reached a point where their launching in the following year seemed assured, the *Titanic* being completely in frame at the end of the year. Each vessel is 860 feet in length, 92 feet beam, 45,000 tons displacement and 45,000 horsepower, which will serve to give a speed of 21 knots an hour. There will be both turbine and reciprocating engines in order to secure the greatest economy.

An interesting departure from established

practice was made in the construction of the British merchant vessel *Monitoria*, where the hull was built with large corrugations with the object of increasing the longitudinal strength without adding to its weight. In this way it was claimed that an additional carrying capacity of from three to four per cent. could be obtained with but slight increase in cost.

The combination of turbine and reciprocating engines introduced for intermediate speed vessels as in the *Otaki* and *Laurentic* was found advantageous, both vessels showing substantial economies and other vessels were being fitted with this system in 1909. A low speed vessel was being fitted by the Parsons Company with its turbines.

The United States Commissioner of Navigation reported the following construction for the fiscal year ended June 30, 1909:

Geographical Distribution		1908	1909
Atlantic and Gulf Coast	665	209,778	582
Porto Rico	10	109	8
Pacific Coast	359	57,050	276
Northern Lakes	216	341,165	174
Western Rivers	207	6,114	207
Total construction..	1,457	614,216	1,247
Power and Material:			
Sail			
Wood	134	31,981	132
Metal .....	...	.....	9
Total	134	31,981	141
Steam			
Wood	791	38,999	754
Metal	132	442,625	67
Total	923	481,624	821
Canal, wood.....	46	4,970	21
Barges			
Wood	337	88,240	251
Metal	17	7,392	13
Total	354	95,641	264
Total construction..	1,457	614,216	1,247

In the calendar year 1909 the United States built merchant vessels to the amount of 209,604 tons or a tonnage of 95,000 less than in 1908. The decrease is most marked in respect of coasting vessels of which 78,000 tons less were produced, while the reduction in the case of the Great Lakes tonnage was only 17,000 tons. The figures for the Great Lakes include fifteen steamers, of over 5000 tons, the largest of which was the *Shenango*, of 8407 tons, launched by the Great Lakes Engineering Works of Detroit, Michigan.

The largest and only important ocean steamer was the *Wilhelmina*, of 6975 tons, built at Newport News. There was launched in December at Bath, Me., a large wooden six-masted schooner—the *Wyoming*—of 3730 tons and 350 feet in length, exceeding in size the *William L. Douglas*, 3708 tons, previously the largest sailing vessel ever built in the United States. Only one other sailing vessel exceeding 1000 tons was launched in the United States. The figures do not include river and harbor craft, the total of which amounted to over 33,000 tons.

At the close of 1909 the ship yards of the

Great Lakes had under construction for delivery in the following year, 22 bulk freighters with an aggregate carrying capacity of 203,740 gross tons of ore, increasing the total carrying capacity of the lake freighters in a season to 41,086,000 gross tons.

An important river paddle wheel steamship of a distinctly American type was the *Robert Fulton*, which was built by the New York Shipbuilding Co., of Camden, N. J., for use on the Hudson River as a day boat. It is 348 feet in length, 42 feet beam, and 76 feet in width over the guards, with a steel hull of so fine a model that a maximum speed of 23½ miles an hour was produced without difficulty. The *Robert Fulton* was launched in the record time of two months and ten days after the hull was laid.

Germany, according to Lloyd's returns, built in 1909, 84 vessels, of 128,696 tons, a decrease of 79,000 tons from the total of the preceding year. In 1905 the total was 255,000 tons; in 1906, 318,000 tons. Lloyd's do not take into account vessels launched on the upper rivers, which would have added 27,000 tons to the total output for 1909. Of the vessels built, seven were of 5000 tons and upwards, the largest being 6742 tons. The only sailing-ship of any importance launched during the twelve months was a training-ship of about 1600 tons.

Holland launched 52 vessels of 59,106 tons, exclusive, again, of river craft, of which 19,000 tons were completed. There were three steamers exceeding 5000 tons, the largest, built at Flushing, of 7442 tons.

Japan took fifth place amongst the countries of the world, building 75 vessels, of 52,319 tons, which is only slightly less than in the two preceding years. The principal vessel completed was the *Kiyo Maru*, an oil-carrying steamer of 9300 tons.

France had an output of 51 vessels, of 42,197 tons, only a little more than half that of the preceding year. Nevertheless, there was built the largest merchant steamer constructed outside of Great Britain—the *Espagne*, of 11,000 tons.

Italy increased the output of the preceding year with a total of 31,217 tons, or less than in 1905 and 1907. Three vessels exceeded 7000 tons—the largest, the *Oceano*, being of 8996 tons.

Austria-Hungary produced 15 vessels, of 25,006 tons, which is 15,000 tons more than in 1908, and greater than in any preceding year. Denmark had a total about one-third that of the previous year and in Norway it was only about one-half the average of the preceding five years.

See STEAM TURBINE; BATTLESHIPS; NAVAL PROGRESS.

SHIRLAW, WALTER. An American artist, died December 26, 1909. He was born at Paisley, Scotland, in 1838 and was brought to the United States when but two years of age. He became a banknote engraver, and subsequently in 1861 exhibited at the National Academy. He was actively engaged in art work from that time until his death. In 1868 he became academician of the Chicago Academy of Design. From 1870 to 1877 he studied in Munich. His specialty in painting was genre pictures. He also did much decorative work and illustrations for books and magazines. He was one of the founders and first president of

the Society of American Artists. He became an associate of the National Academy of Design in 1887 and academician in the following year. He taught in the Art Students' League.

SHIVELY, BENJAMIN F. American public official, United States Senator from Indiana. He was born in St. Joseph county, Indiana, in 1857 and graduated from the Law Department of the University of Michigan in 1886. He taught school and engaged in journalism until he was elected to fill the vacancy in the 48th Congress and was reelected to the 50th, 51st and 52d Congresses. He was Democratic nominee for Governor of Indiana in 1896 and received the Democratic vote of the legislature for United States Senator in 1903-1905. As a result of the election of the Democratic legislature in 1908 he was elected United States Senator on January 20.

SHOES. See BOOTS AND SHOES.

SHOOTING. Higher scores than usual were made in many of the shooting events in 1909, owing to the greater interest taken in the sport and to the improvements made in guns and ammunition. In the matches held under the auspices of the National Rifle Association of America, the individual military championship of the United States was won by Major William B. Martin of the Second Infantry, National Guard of New Jersey, who scored a total of 636. Other winners were: Wimbledon Cup (1000 yards), Sergeant Victor H. Czegka, United States Military Academy; Leach Cup (800, 900 and 1000 yards, seven shots at each), Lieutenant Joseph L. Topham, Thirteenth United States Infantry; Long Range Tyro Match (1000 yards), Lieutenant C. L. Test, Texas National Guard; President's Match, Andrew D. Denny, United States Naval Academy; Press Championship of the United States, Warren H. H. Smith, Cleveland *Leader*; Individual Rapid Fire Match, Lieutenant-Colonel W. A. Tewes, New Jersey National Guard; Regimental Team Championship, First Infantry, Colorado National Guard; Company Team Championship, Company F, First Infantry, Minnesota National Guard; Inter-Club Championship, Fort Pitt Rifle Club of Pittsburgh, Pa.; Revolver Team Championship, First Squadron Cavalry, Colorado National Guard.

The tenth annual tournament of the United States Revolver Association took place September 4-12, the matches being held in seventeen cities. The revolver championship at 50 yards was won by I. R. Calkins of Springfield, Mass., R. H. Sayre of the New York National Guard, who won the preceding year, finishing second. Events and winners in other matches were: Military Revolver Championship, W. H. Whigham, Chicago; Pistol Championship, I. R. Calkins, Springfield, Mass.; Military Record match, C. F. G. Armstrong, Eureka, Cal.; Military Revolver Team match, Squadron A, New York National Guard.

In trap shooting several new records were made in 1909. A. N. Ford in an amateur match in St. Louis made a run of 342 clays without missing and F. Coleman killed 50 live birds in straight shots at Pottsville, Pa. C. G. Spencer accomplished the feat of making 565 targets in an unfinished run. The professional championship of the United States was won by Fred Gilbert, who scored 193 out of a possible 200, and the amateur champion-

ship by D. A. Upson, who made 188. Fred Shattuck won the Grand American Handicap by scoring 20 out of 20 in the deciding shoot-off. The Intercollegiate Spring Tournament resulted in a victory for Yale, with Harvard second and Princeton third. Wright of Princeton made the individual high score. In the fall matches Yale again won, with Harvard second and Pennsylvania third, Princeton not competing. In a dual match between Yale and Princeton, Heberard of Yale made the record individual score of 50 perfect shots.

SHORT BALLOT. See ELECTORAL REFORM.

SIAM. An independent kingdom in south-eastern Asia between Burma and French Indo-China. The capital is Bangkok.

AREA AND POPULATION. The area is stated at about 200,000 square miles. By the Anglo-Siamese treaty concluded at Bangkok March 10, 1909, the Siamese states of Kelantan, Tringganu, and Keda (qq. v.), with an area of about 12,500 square miles and a population of some 630,000, were ceded to Great Britain. An estimate of the population of Siam, based upon the results of a partial census, places the total at about 6,687,000. The Chinese population is large, amounting in Bangkok alone to some 200,000, the total population of the city being 628,675. In 1908 Chinese coolie immigration was 60,508, and emigration 49,340. The prevailing religion is Buddhism, and education is carried on chiefly by the priests.

PRODUCTION. The staple product and export is rice, and the area under this grain is being much enlarged by irrigation.

In Bangkok there are 26 large rice mills. Other crops of some importance are sesame, hemp, cotton, tobacco, and pepper. Fruits are abundant. Cattle are raised in considerable numbers. Rubber collection has been begun, and the cutting of teak in northern Siam is an important industry, chiefly in British hands. Large quantities of fish are taken along the coasts. Except tin (in the Malay Peninsula) and rubies and sapphires, the mineral resources have been little exploited.

COMMERCE. In the fiscal year ending March 31, 1908, imports and exports by sea were valued at £5,784,985 and £7,332,241 respectively; in the fiscal year 1909, £5,782,000 and £7,583,000 respectively. In the former year, the principal oversea imports were: Cotton goods, £996,795; treasure, £895,144; steel, iron, and machinery, £398,053; silks, £247,056; gunny bags, £220,714; sugar, £192,421; kerosene, £140,788; opium, £122,029; cotton yarn, £110,016; hardware and cutlery, £160,743. The chief exports are rice and teak. In 1905 rice exports amounted to 820,864 tons, valued at £4,600,653; 1906, 917,682 tons, £5,546,926; 1907, 683,851 tons, £4,897,613. The following are oversea export figures for the fiscal year 1908: Rice, 795,855 tons, valued at £5,556,560; teak, 87,437 tons and 426 tons of teak shingles, £981,513; other woods, £24,755; treasure, £139,652; marine products, £122,075; hides, £86,420; pepper, £56,965; silks, £35,501; raw silk, £32,869; bottles, £20,981; bullocks, £20,423; sticklac, £19,280; birds' nests, £12,789. In the fiscal year 1909, the oversea export of rice was valued at £5,975,000, and teak £887,000. There is a comparatively small trade, for which complete statistics are not available, between northern Siam and Burma, the British States, and Yun-

nan. Bangkok has almost the entire oversea trade. Singapore and Hongkong send about one-half of the imports and receive about seven-tenths of the exports.

COMMUNICATIONS. There are open to traffic about 600 miles of railway, mostly owned by the state. There is a considerable mileage under construction and projected. The government is extending the railway system northward. The Anglo-Siamese treaty of March 10, 1909, provides for a southward extension to connect with the system of the Federated Malay States; thus, with the construction of about 150 miles in the Federated Malay system and the completion of the southward Siamese extension, Bangkok will be placed in direct rail communication with Singapore. Siam was to contract a loan of £4,000,000 for construction. There are about 3000 miles of telegraph line, with over 6200 miles of wire. Post-offices in 1908 numbered 113.

In 1908 there entered the ports 785 vessels (with cargo), of 762,191 tons, and cleared 791, of 767,517 tons. The merchant marine in 1908 consisted of 18 steamers, aggregating 2120 tons, and 50 sailing vessels and junks, aggregating 4626 tons.

FINANCE. The unit of value in the tical, which has been worth about 36 cents, fluctuating with the price of silver. In the latter part of 1908, a measure was enacted providing for the establishment of the gold standard and fixing the value of the tical at one-thirteenth of a British sovereign, or 37.43461 cents. Revenue and expenditure for 1906-7 are stated at 57,014,805 ticals and 56,837,460 ticals respectively; estimates for 1907-8, 50,700,805 and 56,261,524 respectively; for 1908-9, 59,200,717 and 66,594,611. Revenue is divided principally from taxes on opium, spirits, and gambling (which are farmed out) and from customs, land, and fisheries. Estimated farmed receipts in 1907-8 were 24,983,405 ticals; land and fisheries, 8,454,775; customs, 5,826,600; railways, 4,100,009. The principal items of expenditure were: War, 14,270,854; interior, 11,189,759; civil list, 7,500,000; railways, 6,000,000; finance, 5,714,407. The government has undertaken to suppress the gambling houses and, with the consent of the treaty Powers, will make up the loss of revenue by increased import duties.

The public debt in 1909 stood at £4,000,000. The paper currency on March 31, 1908, amounted to 14,796,040 ticals.

ARMY. The active army consists of about 6000 men and on a peace footing consists of 10 divisions and 80 pieces of artillery. In each division are two regiments of infantry, 1 regiment of cavalry or chasseurs, (2 squadrons), 1 regiment of artillery, 1 company of engineers, 1 company of train, and an ambulance company. The armament is modern, the rifles being Mannlicher and Mauser. In addition to the standing army there is a general training of male inhabitants for the militia.

NAVY. The effective navy, as reported in 1900, consisted of one imported small cruiser, 4 gunboats, 3 torpedo gunboats, and one torpedo-boat destroyer. There were several dispatch boats, transports, etc., and various small craft for river service.

GOVERNMENT. The executive power is exercised by the King, assisted by an appointed ministry. There is a legislative council (41 members at present) appointed by the King.

The King in 1909 was Chulalongkorn I., who was born September 21, 1853, and succeeded to the throne October 1, 1868. The heir apparent is Chowfa Maha Vajiravudh. The administration and general condition of Siam have been greatly improved in recent years through foreign advisers in various branches of the government.

HISTORY. Important territorial cessions have been made by Siam to France and Great Britain in recent years. To France Siam ceded, by the treaty of March 23, 1907, certain regions adjoining Cambodia having an area of about 7800 square miles and a population of about 200,000, and leased for fifty years to the government of Indo-China at a nominal rent certain lands on the right bank of the Mekong. On the other hand France restored to Siam the port of Krat and the Dansai region in Laos. An understanding between Great Britain and Siam was reached in 1908, whereby Kelantan, Tringganu and adjacent territories were to be ceded to the former. This was definitely carried out in the Anglo-Siamese treaty of March -0, 1909 (see MALAY STATES), which contained also important provisions as to the status of British subjects. All the rights and privileges enjoyed by natives were extended to British residents. British subjects registered at the British consulate before the signature of the treaty (March 10) were placed under the jurisdiction of the Siamese international courts; those registered after March 10 were placed directly under the jurisdiction of the Siamese courts. Certain conditions designed to safeguard the rights of British subjects in these courts were, however, stipulated, the chief one being that European advisers should sit in any court trying a British subject. Upon the completion of the Siamese codes, the jurisdiction of the international courts was to be transferred to the ordinary Siamese courts and the above distinction would no longer be made.

SIERRA LEONE. A British colony and protectorate on the West African coast. Area of Sierra Leone proper (the peninsula only) 300 square miles; of the colony 4000 square miles; population (1901) 76,655; area of the protectorate 30,000 square miles; population (estimate), 1,000,000. Capital, Freetown, 37,280 inhabitants; the greatest seaport in West Africa, with a splendid harbor. There are in the colony 40,790 Protestants, 7396 Mohammedans, 571 Roman Catholics; remainder, pagans. There are mission and Mohammedan schools, and the Fourah Bay College affiliated with the University of Durham. Numerous descendants of liberated Africans from North America and the West Indies are engaged in the production of palm-oil, palm kernels, rice, rubber, kola-nuts, ground-nuts, cocoanuts, ginger, etc. Imports (cotton goods, coal, wearing apparel, hardware, tobacco, etc.) for 1908 amounted to £813,700 (Great Britain £570,908), exports £736,755 (Great Britain, £177,216), against £988,022 and £831,259 in 1907. A railway (227 miles) has been constructed from Freetown into the interior, with terminus at Baimea near the Liberian frontier. There are 227 miles of telegraph line. Revenue and expenditure (1908) £321,000 and £341,871 respectively, against £359,104 and £345,567 in 1907. The Governor (1909, Sir Leslie Probyn) is aided by executive and legislative councils.

SILK. The silk crop of 1909 was the largest on record, being approximately 1,000,000 kilograms greater than that of 1908 excluding the Tussock production, which was estimated at 10 per cent. below that of 1908. In Italy there was a decrease of 500,000 kilos from the crop of the previous year, due to unfavorable conditions in the Piedmont district and the failure of the crop in southern Italy. Austria-Hungary showed an increase of about 60,000, the Levant an increased production greater by about 200,000 kilos, while Japan had its largest crop on record, exceeding the previous year by at least 600,000 kilograms, a gain practically equaled by China.

ESTIMATES OF THE WORLD'S SILK CROP
American Silk Journal

	Kilos 1909	Kilos 1908	Kilos 1907
Europe.....	5,200,000	5,555,000	5,917,000
Levant.....	2,900,000	2,670,000	3,024,000
China.....	4,400,000	3,782,000	3,144,000
Canton.....	2,100,000	2,341,000	2,202,000
Japan.....	8,100,000	7,490,000	6,300,000
Bengal.....	400,000	300,000	340,000
Total.....	23,100,000	22,088,000	20,927,000

The American market plays a very important part in the world's silk trade and holds the control of raw silk prices as it consumes almost 45 per cent. of the total raw silk production, while at the same time its imports of raw silk and silk fabrics taken together amount to about one-half of the world's known consumption.

In 1909 37 new silk mills were constructed in the United States, of which 34 were located in New Jersey and Pennsylvania, showing the tendency towards concentration in this industry. In fact while the total mill construction was in excess of that of 1908, when 32 new mills were built, yet in that year six different States were represented. The total number of new mills since 1903 was as follows; 1903, 58; 1904, 49; 1905, 53; 1906, 36; 1907, 51; 1908, 32; 1909, 37. The distribution of the new mills both as regards location and class of product in 1909 is shown in the following table from the *Textile World Record*:

NEW SILK MILL CONSTRUCTION, 1909

	New Jersey	Penn.	Mary- land	Vir- ginia
Broad Silk.....	9	7	1	..
Ribbon	4	10	1	..
Silk Throwing.....	—	4	..	1
Total	13	21	2	1

Darison's Silk Trade for 1910 reported 1283 mill in the United States on December 31, 1909, as compared with 1180 on the same date of the previous year. They were divided as to the class of goods manufactured as follows: Broad silks, 390; ribbons, 155; plushes and velvets, 15; webbing and narrow fabrics, 44; laces and veilings, 22; commission throwsters and thrown silk, 162; sewing, twist and knitting silk, 28; spun silk, 6; artificial silk, 2; silk laces and lacings, 18; silk covered wire, 35; trimming and braids, 209; knit goods, 107; gloves and mittens, 31; upholstery goods, 21; carding and

waste, 1; warp, wind, spool, quill, etc. 37. There were also engaged in the industry 111 dyers and finishers of silk and silk mixed goods. New Jersey leads all other States in the number of its mills, 371 in 1909, and of these 292 were located in Paterson. New York has 309, Pennsylvania 325, Massachusetts 76, Connecticut 74, and Rhode Island 35, the remainder being distributed among other States.

An interesting development in the United States during 1909 was the increased raw silk consumption on the part of the cotton mills,

good. Broad silks were not favored as much by fashion as in previous years, but with high prices for cotton and wool at the end of the year a better season for silk fabrics was hoped for.

Raw silk in skeins, reeled from the cocoon or unreeled to the amount of 22,227,185 pounds, valued at \$74,060,605, was imported into the United States in 1909, as compared with 18,723,119 pounds, valued at \$64,239,034, in 1908. Japan furnished the greater part of the imports, supplying 12,211,360 pounds, valued at \$42,305,934, and was followed by Italy, 4,595,232 pounds, valued at \$17,837,048; Chinese Empire, 4,490,836 pounds, valued at \$11,041,578; France, 761,364 pounds, valued at \$2,237,970; and other countries, 168,193 pounds, valued at \$638,075. The total imports of manufactures of silk aggregated \$32,963,162 as compared with \$27,020,212 in 1908, France as usual supplying the greatest amount, with imports valued at \$15,313,137, followed by Germany with \$6,083,363; Switzerland, \$4,421,867, and United Kingdom, \$2,585,552.

SILUNDRUM. See CHEMISTRY, INDUSTRIAL.

SILVER. During 1909 the silver mining industry suffered from low market prices for the metal and for copper and lead. The average price of silver in 1908 was 53 cents per fine ounce, but declined in 1909 to 52 cents, or 25 cents below the average for the last thirty years, a value not sufficiently attractive to justify the mining, under ordinary conditions, of low grade silver ores. The production of silver in the United States in 1908-9 will be found in table I. given in preceding column. The figures for 1909 are from the preliminary estimates made by the Director of the Mint.

From these figures it will be seen that the production of silver was maintained at about the same figures as in 1908, and at about 3,500,000 ounces above the average output for the last thirty years, even though the value was over \$10,000,000 less than the average for this period. The most notable increase of production in 1909 as compared with 1908 was in Montana, and Arizona, which are large copper producers and where the smelting industries were generally active in 1909. In Colorado there was little profit in mining and smelting low-grade ores, and a heavy decrease of 1,056,000 fine ounces or about 10 per cent, of the output of 1908 was indicated. In both Idaho and Nevada decreased output is shown amounting to more than 500,000 ounces in each case. The market for silver in 1909 offered little encouragement, as a largely increased foreign output, especially from the Cobalt district in Canada, was in competition with the domestic production. The failure of India to buy as largely as usual was only partly offset by the sales to China.

From estimates of the Bureau of Statistics, the imports in 1909 were valued at \$30,332,088 for silver in foreign ore, \$12,431,150 for silver in foreign bullion, and \$2,967,768 for silver in foreign coin. During the same year exports of silver were valued as follows: Domestic ore, \$640,647; foreign ore, \$68,278; domestic bullion, \$54,336,904; foreign bullion, \$1,223,426; United States coin, \$170,258; and foreign coin, \$570,831. The value of silver in excess of total exports over that of imports in 1909 was therefore

	Fine ounces	1908 Commercial value
Alabama	400	\$ 200
Alaska	204,600	109,400
Arizona	2,900,000	1,551,200
California	1,703,700	911,300
Colorado	10,150,200	5,429,400
Georgia	200	100
Idaho	7,558,300	4,042,900
Illinois	2,000	1,100
Michigan	294,100	157,300
Missouri	49,400	26,400
Montana	10,366,200	5,539,500
Nevada	9,508,600	5,086,100
New Mexico	400,900	214,500
North Carolina	1,300	700
Oregon	1,300	700
Philippines	1,300	700
Porto Rico .....	.....	.....
South Carolina	200	100
South Dakota	197,300	105,500
Tennessee	60,900	32,600
Texas	447,000	239,100
Utah	8,451,300	4,520,600
Virginia	300	200
Washington	86,800	46,400
Wyoming	8,500	1,900
Other States	152,207	80,670
Total	52,440,800	\$28,050,600

	Fine ounces	1909 Commercial value
Alabama	200	\$ 100
Alaska	153,100	82,200
Arizona	3,632,200	1,889,300
California	1,705,200	887,000
Colorado	9,093,600	4,730,100
Georgia	200	100
Idaho	7,054,500	3,669,500
Illinois	3,600	1,900
Michigan	323,900	168,500
Missouri	15,200	7,900
Montana	12,000,000	6,241,900
Nevada	8,953,000	4,657,000
New Mexico	329,200	171,200
North Carolina	500	300
Oregon	71,100	37,000
Philippines	2,100	1,100
Porto Rico .....	.....	.....
South Carolina	200	100
South Dakota	205,600	107,000
Tennessee	58,500	30,400
Texas	358,300	186,400
Utah	9,533,400	4,958,900
Virginia	6,000	3,100
Washington	73,500	38,200
Wyoming	1,100	600
Other States	269,800	140,300
Total	53,849,000	\$28,010,100

these factories using large quantities of Tussah silk in making the silk and cotton mixtures which were in great demand. The cotton mills made cotton back satins, cotton warp pongees, and cotton warp novelties to a degree that caused silk makers considerable anxiety. The ribbon industry in the United States was disappointing, but in Europe conditions were

\$11,270,338. The imports of silver were chiefly in the form of ore and bullion, and came largely from Mexico and Canada, about twice as much from Mexico as from Canada. The exports consisted almost wholly of ore and bullion, and went chiefly to the United Kingdom, although important shipments were made also to Hong-kong direct and to France.

The average price of silver in New York and London by months during the year 1909 is indicated in the table below, taken from the *Engineering and Mining Journal*.

SILVER.

Month	New York		London	
	1908	1909	1908	1909
January	55.678	51.750	25.738	23.834
February	56.000	51.472	25.855	23.706
March	55.365	50.468	25.670	23.227
April	55.505	51.428	25.133	23.708
May	52.795	52.905	24.377	24.343
June	53.663	52.538	24.760	24.166
July	53.115	51.043	24.514	23.519
August	51.683	51.125	23.858	23.588
September	51.720	51.449	23.877	23.743
October	51.431	50.923	23.725	23.502
November	49.647	50.703	22.933	23.351
December	48.766	52.226	22.493	24.030
Total	52.864	51.503	24.402	23.726

New York, cents per fine ounce; London, pence per standard ounce.

SINGAPORE. See STRAITS SETTLEMENTS.

SKATING. The International Outdoor Skating Championship contests were held at Saranac Lake, New York, on February 4. O. B. Bush won the 220-yard race in 19½ seconds and Edmund Lamy won the 880-yard event in 1 minute 23½ seconds, the 1-mile in 2 minutes 53½ seconds and the 3-mile in 9 minutes 31 seconds. Bush and Lamy also divided honors in the Canadian Amateur Championships at Montreal (February 6), Bush winning the 220-yard race and Lamy the 880-yard, 1-mile and the 3-mile events.

In the National Indoor Championships, held at Cleveland, Ohio, on January 25, Lamy won the 880-yard, the 1-mile, the 1½-mile and the 2-mile events. The winners in the International Indoor Championships, held at Pittsburg, January 29-30, were: 880-yards, Bush; 1-mile, Bush; 2-mile, Lamy, and 5-mile, Lamy. In the professional meet at Cleveland on March 11, Baptil won the mile and Wood the quarter mile.

New York City is the principal centre in the United States for roller skating. The chief events in this sport with their winners in 1909 were: Eastern Professional Championship at one and two miles, Frank Goldie of St. Louis; Greater New York Professional Championship at one, two and three miles, W. Blackburn; Greater New York Amateur Championship at one, two, three and four miles, W. Doxsey, and at five miles, H. Smith. The National Championship in figure skating in 1909 went to A. Williams.

SLEEPING SICKNESS. The mortality from this disease, which had ranged from 20,000 to 30,000 a year in Uganda, has, according to Governor Bell of the Uganda Protectorate, been brought under control, less than 2000 deaths occurring during 1908, and these almost exclusively in the segregation camps. This result was obtained only by the most drastic

measures. For several hundred miles along the shore of Lake Victoria a strip two miles in width has been depopulated and the inhabitants removed inland. All cases were segregated into large camps and great care taken to eliminate all sources of infection. The interesting fact that the habitat of the tsetse fly (*Glossina palpalis*) is confined within belts of territory, is of great importance in preventing sleeping sickness. These belts are sharply defined, and if one is ten feet outside of the fly belt he runs little chance of being bitten. This is illustrated by several incidents. Caravans crossing a river in the midst of a fly belt in a certain city used to carry cases of sleeping sickness down to the coast. By changing the route a few yards upstream this source of infection was avoided. One village situated in a fly belt was decimated. On the removal of the village to a location about a quarter of a mile away no further case of sleeping sickness developed. The question as to the method by which the tsetse flies transmit sleeping sickness is still unsettled. As the result of experiments by Kleine, Bruce, Taute and others, it is believed that transmission is not purely mechanical, but that the flies are true hosts for the *Trypanosoma gambiense* and that the period of incubation in the fly is about twenty days. These organisms are thought to undergo a period of development in the tsetse fly analogous to that of the malarial parasite in the mosquito. It is believed that this discovery has considerable importance with regard to the prophylaxis of sleeping sickness, because once the cycle of development of the trypanosoma is completed, it may be capable of transmitting infection for long periods. Medical treatment by means of atoxyl, an arsenical preparation from which so much was hoped, has proved a failure. (See *Bulletin* No. 3 published by the Sleeping Sickness Bureau, London, 1909.)

SMALLPOX AND VACCINATION. An outbreak of smallpox occurred in Bristol, England, during the early months of 1909. The first case was that of a dock laborer, employed in unloading barley from a ship from southeastern Europe. Several people were infected by one case that was not recognized. This patient was taken to a hospital and after death was removed to his home, where a wake was held. Employees of the hospital and several of his friends who attended the wake contracted the disease. In answer to an anti-vaccinationist who attempted to make capital out of the small epidemic, it was brought out that of all the children under 14 who were exposed to infection nine contracted smallpox. Two of these had been vaccinated; and in them the attack was abortive. Of the seven unvaccinated children three died. Eastern Europe appears to be a reservoir for smallpox. The difficulty in stamping out the disease in Russia is illustrated by the fact that in this country, according to the Russian correspondent of the *Deutsche Medicinische Wochenschrift*, there were 10,000,000 members of the orthodox religion—"old believers"—who oppose vaccination on the ground that they see in scarification the sign of antichrist. A bill brought forward by the government to establish general vaccination was rejected by the commission appointed to consider the measure, it is believed on the above grounds. In contrast to this, Mozzeti relates an interesting experience in Abyssinia, where, there be-

ing some danger of an epidemic of smallpox, he vaccinated, at the request of the native authorities, several thousand people, with the usual technic. The authorities, however, decided that this was not sufficient, and the people were vaccinated over again by the method of variolization, that is, inoculation with pus taken from a smallpox patient. These latter inoculations did not "take" upon any of the previously vaccinated persons, thus proving conclusively the sufficiency of vaccination with cow lymph.

McFarland answers certain stock objections to vaccination in the following way: To the statement that cases and deaths from smallpox occur in every country no matter how thoroughly vaccinated, it is rejoined that some vaccinations miscarry; some individuals are not rendered immune thereby, others have outlived the immunity conferred by their vaccination. These persons are all susceptible, and may be infected if they come in contact with the disease. To the objection that in most epidemics a certain number of vaccinated individuals contract the disease, the same answer is made: that these individuals have outlived their immunity. The third objection—that in most places more vaccinated than unvaccinated persons die,—is met by the fact that this is inevitable when the number of vaccinated greatly exceed the unvaccinated. Complete protection is to be had only through strict enforcement of vaccination, so that the number of unprotected individuals is reduced to a minimum.

SMILLIE, JAMES DAVID. An American artist, died September 14, 1909. He was born in 1833 in New York City, and received his first lessons in art from his father, James Smillie, an engraver. Until 1862 he worked chiefly at bank-note vignettes, but at the same time also devoted himself to general design and illustration, studying at the schools of the National Academy of Design. From 1862 to 1864 he studied in Europe, and upon his return to New York exhibited at the National Academy of Design, of which he was made a member in 1876. His paintings in oils include "Evening among the Sierras of California" and "Lifting of the Clouds in the Adirondacks." Among his works in water-colors are the "Scrub Race on Western Prairies" and "Track of the Torrent." As an engraver, Smillie produced original plates in illustration of the various styles of engraving for the department of graphic arts at the Pratt Institute, Brooklyn, and the Smithsonian Institution, Washington, D. C. His work shows remarkable skill in the handling of colors.

SMITH, CHARLES STEWART. An American banker and art connoisseur, died November 30, 1909. He was born in Exeter, N. H., in 1832. He served as clerk in a drygoods house in New York City for six years, after which he obtained an interest in the firm of S. B. Chittenden and Co. As foreign buyer for this firm he cultivated a taste for art, which later led to the amassing of a large collection of valuable works. He subsequently helped to establish the commission house of George C. Richardson & Co., which became Smith, Hogg & Gardner. He retired from this firm in 1887. In 1894 he declined the Republican nomination for mayor, referring to exert himself as chairman of the committee of 70 to bring about the election of

Mayor Strong. As chairman of the Building Committee of the Metropolitan Museum of Art, he advocated the building of a large gallery exclusively for American works. He left a large collection of paintings of different national schools. He was a member of the Rapid Transit Commission and was for seven years president of the Chamber of Commerce. He was one of the founders of the Fifth Avenue Bank and of the German American Insurance Company, besides being a trustee in many other banking and insurance corporations.

SMITH, CLEMENT LAWRENCE. An American scholar and educator, died July 1, 1909. He was born at Upper Darby, Pa., in 1844, and in 1860 graduated from Haverford College. In 1863 he graduated from Harvard College. From the latter date to 1869 he taught at Haverford, when he went to Swarthmore College. A year later he became tutor in Latin at Harvard College, and in 1873 was made assistant professor. From 1882 to 1891 he was dean of Harvard College, and from 1898 to 1901 was dean of the faculty of arts and sciences. He retired from active service in 1904. Professor Smith was president of the American Philological Association in 1898-9. He edited the *Odes and Epodes of Horace*, and was a contributor to philological journals.

SMITH, W. SAUMAREZ. Archbishop of Sydney, and Primate of the Anglican Church in Australia, died in April, 1909. He was born in 1836, and was educated at Trinity College, Cambridge, graduating in 1858. After several years in India as chaplain to the Bishop of Madras, he became, in 1869, principal of St. Andrew's School. In 1890 he was appointed Bishop of Sydney, and later Archbishop.

SMITH, WILLIAM THAYER. An American physician and educator, died September 17, 1909. He was born in New York City in 1839 and graduated from Yale College in 1860. In 1876 he graduated from the Dartmouth Medical School and a year later from the medical department of New York University. He was professor of physiology at the Dartmouth Medical School from 1885 to 1907. In the latter year he was made professor emeritus of physiology and professor of clinical surgery. He was a member of the American Medical Association and the American Academy of Medicine.

SMITH COLLEGE. An institution for the higher education of women at Northampton, Mass., founded in 1875. In 1909 there were 1600 students in attendance and the faculty numbered 118. In the library there were 30,000 volumes. Gifts were received during the year amounting to \$65,398. The endowment of the college is about \$1,300,000 and its annual income approximately \$200,000. Arrangements have been made for the erection of additional buildings including the Assembly Hall and two dormitories. In 1909 Reverend Marion Le Roy Burton was elected president, succeeding L. C. Seelye.

SMITHSONIAN INSTITUTION. An institution established in 1846 in accordance with provisions of the will of James Smithson, an Englishman, who bequeathed his fortune to the United States for the increase and diffusion of knowledge. The parent Institution has administrative charge of several branches, which were developed by its early activities and are now

supported by Congressional appropriations. These are the United States National Museum, the International Exchange Service, the Bureau of American Ethnology, the National Zoölogical Park, the Astrophysical Observatory, and the Regional Bureau for the International Catalogue of Scientific Literature. The institution issues three regular series of publications: *Smithsonian Contributions to Knowledge*, the *Smithsonian Miscellaneous Collections*, and a *Smithsonian Annual Report*. The *Proceedings* and *Bulletins* of the National Museum, the *Reports* and *Bulletins* of the Bureau of American Ethnology, and the *Annals* of the Astrophysical Observatory are issued under the auspices of the Institution. Investigators are aided by grants for original research to the extent of the funds available for the purpose. During the year 1909, the Institution conducted various researches in zoölogy, paleontology, meteorology, and botany. It made allotments from its Hodgkins Fund for the furtherance of studies on the relation of the atmosphere to the welfare of man, including the erection of a stone shelter on the summit of Mount Whitney, California, at an elevation of 14,502 feet, for the benefit of scientific investigators; the preparation of a bibliography of aeronautical literature containing about 13,500 references. The Board of Regents established, as a memorial to the late Secretary Langley, a gold medal to be known as the "Langley Medal," which is to be awarded for specially meritorious work in connection with the science of aerodynamics. The first award was made to Messrs. Wilbur and Orville Wright. For sixteen years the Institution has supported a table at the Naples Zoölogical Station for the use of American biologists. The Smithsonian African Expedition, under the direction of Colonel Theodore Roosevelt, sailed from New York, March 23, arriving in Africa, April 21. In December, 1909, the results of the Expedition had totaled 6663 skins of large and small mammals and birds, besides many skulls and skeletons and about 2500 sheets of plants. No part of the expenses of the expedition has been paid either from the funds of the Institution or from any government appropriation, being provided entirely by private subscription. The annual income of the parent Institution is about \$60,000 and the Congressional appropriations disbursed under its direction for the government branches administered by it aggregate about a million dollars each year. The Secretary of the Institution is Charles D. Walcott; Assistant Secretary in charge of the United States National Museum, Richard Rathbun. See UNITED STATES NATIONAL MUSEUM.

SMOKE PREVENTION. This continued in 1909 to receive the attention of an increasing number of cities and smoke abatement leagues. Studies of the subject have been made by the Technologic Branch of the United States Geological Survey, from which information may be secured. A number of papers on smoke prevention were read before the Cincinnati meeting of the American Civic Association in November, 1909, including a general review of the subject by R. C. Harris, of Toronto, Ont., Secretary of the National Association for the Prevention of Smoke.

SOCIALISM. The increasing influence of socialism, under one or another of its manifold

forms, in the domain of political affairs, was plainly discernible during the year 1909. The socialists as a political party added greatly to their numerical strength, notably in France and Germany. It was a year of social unrest and of legislative attempts to solve social questions, as illustrated by the postmen's strikes in France, the great strike in Sweden, the Barcelona revolt, the debate on the British budget and the issue with the House of Lords, and by many measures either passed by the various parliaments or under discussion, which dealt with social questions. In the following paragraphs will be found a brief review of the socialist movement by countries.

FRANCE. Despite the formation of a United Socialist party in 1905 there has been constant warfare between the factions. The hostile revolutionary minority headed by Hervé does not rely exclusively on the mass movement, but believes that much can be done by bands of agitators, though in a minority. Strikes are not enough; riots and violence also have their use. The riot at Villeneuve St. Georges in 1908, when a number of the participants were killed, expressed the spirit of Hervéism. At the Congress of Toulouse in 1908, the counsels of Jaurès prevailed and this policy of guerilla warfare was unanimously condemned. Jaurès did not, he said, oppose violence, but it must be organized and general. He did not approve the skirmishing of an advance guard. Hervé's weekly paper, *The Social War*, on the other hand, implied approval of sporadic acts of violence as tending to help the cause. Partisans of this method among the socialists, syndicalists, and anarchists grouped themselves under Hervé in a Revolutionary Federation and explained their programme in March. They favored a true international socialism as against the parliamentary socialism of the Jaurès and Guesde groups and the institutional socialism of the syndicalists. The Hervéists held that the objects sought could not be gained through the suffrage but only through direct action. They desired a concentrated attack on property, country, state, law and bourgeois morality. They aimed at an insurrection through a general strike and a military revolt. Anti-militarism was the chief feature of their programme. They also opposed all compromise with other parties, demanding that socialists should retain their candidates in elections and not ally themselves with other parties even when the election of their own candidate was impossible. This question came up at the Congress at St. Etienne, April 11-14, 1909. Jaurès, the advocate of "republican discipline," held to the principle of compulsory withdrawal of socialist candidates on the second ballot on behalf of the most favored Radical, and Vaillant demanded withdrawal pure and simple, but the matter was deferred to the next Congress, which will meet in 1910 and decide the general election policy, and till then the way was to be open for alliance with other parties in the complementary elections.

Meanwhile the socialist vote in the complementary elections was greatly increasing. In twelve districts the vote was 33,898, in 1909, as against only 16,322 in 1906. For an account of the postmen's strike, see FRANCE, paragraphs on *History*. Parliamentary socialism profited little from these affairs. Although the unified socialists gained many new adherents in the

country at large, the syndicalists seemed indisposed to alliance with them, tending more and more to independent action. In the first postmen's strike M. Jaurès's paper, *L'Humanité*, remained silent. The anarchists hailed it as a step toward anarchism. M. Yvetot in the *Social War* applauded it as marking the beginning of the overthrow of both the Chamber ("a kennel of crouching dogs") and the Senate ("a hospital for parliamentary invalids"). In the second strike M. Jaurès approved the declaration of a general strike issued by the Confederation's Committee. May Day passed without disturbance. The strength of the Socialist party in 1909 was estimated at 90,000.

The unified socialists were more or less hostile to the new Ministry, for although M. Briand, the Premier, and M. M. Viviani and Millerand were socialists their policy was one of conciliation and of alliance with other republican parties. The national council of the unified socialists adopted at its October meeting a resolution declaring that the party must refuse the government its confidence. "The fact that the Ministry comprises some persons who have abandoned the party is the more reason for deeply distrusting it, inasmuch as a decision of the party forbids voting for independent socialists on the second ballot at elections." This was opposed in vain by M. Jaurès, who denounced the policy of hostile aloofness and offered a milder resolution which was not accepted. Preparatory to the elections of 1910 the socialists allied themselves with the campaign for proportional representation and electoral reform through the *scrutin de liste*. The former would naturally benefit them along with the other minority parties. The *scrutin de liste* was desired as putting an end to the whole difficulty arising from the question of alliance with other parties on the second ballot, for under it there would no longer be a second ballot. Thus it would prevent confusion of parties, consolidate the socialists, and strengthen class feeling. See TRADE UNIONS.

GERMANY. The twentieth Congress of the German Social Democrats was held at Leipsic in the middle of September. An increase of numbers and an improvement in financial status were announced. The number of members enrolled was now 633,309, and this was less than 20 per cent. of the votes cast for socialist candidates in the last general election. The Social Democratic deputies in the Reichstag were called in question before the Congress for having voted for the succession tax (see GERMANY, paragraphs on *History*) contrary to the rule that the party should not vote the budget, but they defended themselves on the ground that had they voted against it they would have played into the hands of the worst reactionaries. They had rejected the 400,000,000 marks of indirect taxes as placing the burden on the poorer classes, but supported the succession tax which laid the charge on those who could afford to pay it. No vote was taken on the question, the subject of taxation being deferred to the next Congress. It was unanimously resolved to boycott brandy as a protest against the duties, which the socialists regarded as unjustly discriminating in favor of the landed class. A resolution was introduced on September 15, declaring coöperation with the Radicals impossible, and denouncing the Liberals

as traitors to the interests of the working classes, but it was subsequently rejected, showing that the extremists were not the predominant element. Money had already been sent in aid of the Swedish strikers and the Congress voted on additional contribution. The most important feature of the year was the extraordinary gain of Socialist votes in the elections. The increase after the fall of von Bülow was very large. In the partial elections for the Reichstag they gained substantial victories at Coburg, Zwonitz, Neustadt and other places. They triumphed in municipal elections in the large cities, Berlin, Altona, and Cologne and in the elections to the Diet in Saxony, Baden, Meiningen, and Saxe-Weimar. In Saxony, where the three-class system had hitherto virtually excluded them from the Diet, they gained under the new plural system applied for the first time in 1909 25 seats out of 91, more than any other party. In Baden the Socialist vote increased from 30,000 to more than 80,000, and the number of deputies from twelve to twenty. In Meiningen they gained five seats, and in Saxe-Weimar four.

GREAT BRITAIN. The chief British socialist organization, the Independent Labor party, held its annual conference at Edinburgh on April 10. It passed a resolution upholding the alliance between labor and socialism and approving the work of the Labor party both in and out of Parliament. A resolution, aimed at Mr. Victor Grayson, the first unqualified Socialist returned to enter Parliament, declared that no salary would be paid any member who would not sign the party constitution. Mr. Grayson refused to surrender his independence as a Socialist. Four members resigned from the Council, Messrs. Keir Hardie, Ramsay MacDonald, Bruce Glasier and Philip Snowden, on account of certain socialist propagandists within the party whose methods they did not approve, but declared they would continue to work for the party in the ranks. The Social Democratic Federation, which plays no part in politics, held its Annual Conference at Bristol on April 9. The chairman's speech attacked the Labor party for its compromises, declaring that it might be satisfied with Liberal policies but that the true Socialists were not. A vote on the question of resuming the alliance with the Labor party brought out only two votes in its favor. The Fabian Society is affiliated with the Labor party and supported some of their candidates in 1909. The Church Socialist League, founded in 1906, had gained considerably in numbers, having at the time of its Annual Conference in 1909 about 1200 members.

RUSSIA. The Russian Social-Democrats acclaimed the Azeff affair as a blow to terrorism (see RUSSIA, paragraphs on *History*). They oppose the policy of indiscriminate violence and barren plots, and favor a rising of the masses and a general strike. The Azeff trial discredited the revolutionary wing by bringing out apparent proof that a chief of the revolutionary socialists who was said to have planned the murder of Von Plehve and the Grand Duke Sergius was an informer in the service of the police and had caused the hanging of a number of the revolutionists. The Russian Social-Democrats consider terrorism a mistake which is certain to benefit the reactionaries.

OTHER COUNTRIES. In Spain the Barcelona outbreak was, according to the Socialist Bureau

of Brussels, anti-militarist, and anti-capitalistic. The socialistic movement in Spain is related to various revolutionary agitations. The party gained eight seats in the May elections. The Moroccan war, the Barcelona riots and the execution of Ferrer tended to stimulate socialist activities during the year (see SPAIN, paragraphs on *History*.) In Sweden antecedent socialist agitation had contributed to the great general strike. German socialist propagandists had for some years past been active in Sweden and the German Social-Democrats contributed to the funds of the strikers. (See SWEDEN, paragraphs on *History*.) In Austria the Socialists secured 87 seats at the last general election. During the difficulty with Serbia the Socialist deputies in the Reichsrath made a demonstration on behalf of peace. In Denmark the Socialists are the largest political party. In the general elections of 1909 they received one-third of the votes cast, an increase of 18,000 over their previous number. In the Netherlands the dispute between the revisionists and the extremists resulted in the triumph of the latter. (See NETHERLANDS, paragraphs on *History*.) In Norway the Socialist vote in the elections of October 23 rose from 8500 to 18,000. In Italy the March elections gave the Socialists a gain of 12 seats, bringing the number in the Chamber to 42. For the labor movement in the United States, see LABOR, AMERICAN FEDERATION OF; STRIKES AND LOCKOUTS; INJUNCTIONS, ETC.

SOCIAL SERVICE, AMERICAN INSTITUTE OF. A society organized in 1898 for the purpose of gathering from all possible sources facts of every kind bearing on the solution of social problems; to interpret these facts by ascertaining as far as possible their causes and effects; and to disseminate the resulting knowledge for the education of public opinion. The society maintains at its headquarters in Astor Place, New York City, a carefully indexed library which contains many valuable foreign books and pamphlets. From its foreign collaborators, who include representatives from nearly every country in Europe, as well as Japan, the society receives government documents and special reports, and keeps in touch with social movements abroad. A notable departure in 1909 was the organization of about 500 classes throughout the United States and Canada for the study of social questions. Weekly lessons are furnished, in which the highest economic and ethical principles are applied to the problems of collective living. The Institute furnishes to libraries the latest literature from the principal governments of the world, and the less accessible reports of semi-public societies bearing on social institutions. In 1909, Dr. Josiah Strong, the president of the Institute, and Mr. James Dangerfield, the special representative of the British Institute of Social Service, began a world tour, which will include all the principal capitals of the civilized world, in an endeavor to form similar institutions to this and others already existing. During the latter part of 1909 these gentlemen were in South America, where they visited the most important of the Latin American Republics. The officers of the Institute in 1909, were: Josiah Strong, President; Warner Van Norden, Vice-President; James Dangerfield, Honorary Director; John T. Perkins, Treasurer; James H. Ecob, Lecturer, and Washington Choate, Recording Secretary.

SOCIETY OF INTERNATIONAL LAW, AMERICAN. See ARBITRATION, INTERNATIONAL.

SOCIOLOGY. The fourth annual meeting of the American Sociological Society was held at New York during the last week of December. Several other societies held sessions concurrently. (See POLITICAL ECONOMY.) During the two previous years the programme of the annual meeting had centred discussion on a single topic, but in 1909 a more varied set of papers was presented. The application of quantitative methods was discussed, both from the standpoint of census-taking and from that of the measurement of homogeneity in a mixed population. A considerable group of papers were read on some phase of psychological sociology, revealing decisively the newer and strong emphasis on the psychological aspects of sociological problems. The two other general topics of discussion were the religious factor in social evolution, and the teaching of sociology. A resolution was adopted instructing the president to appoint a committee of ten to consider steps toward the standardization of the teaching of sociology in this country. Professor Franklin H. Giddings, of Columbia University, was elected president for 1910.

The books of the year of special sociological interest included the following: *An Introduction to Social Psychology*, by W. McDougall; *Social Organization: A Study of the Larger Mind*, by C. H. Cooley; *Psychological Interpretations of Society*, by M. M. Davis, Jr.; *Man in the Light of Evolution*, by J. M. Tyler; *Le socialisme et la sociologie réformatrice*, by A. Fouillée; *Folklore as an Historical Science*, by G. L. Gomme; *The Origin of Terms in Human Relationship*, by Andrew Lang; *The Wretches of Povertyville: A Sociological Study of the Bowery*, by I. L. Nascher; *Responsibility for Crime*, an investigation of the nature and causes of crime and a means of its prevention, by P. A. Parsons; *Parenthood and Race Culture*, by C. W. Saleeby; *Expansion of Races*, by C. E. Woodruff; *Mendel's Principles of Heredity*, by W. Bateson; *Poverty and Hereditary Genius*, by F. C. Constable; *Sociology, its Simpler Teachings and Applications*, by J. Q. Dealey; *Races of Men and Their Distribution*, by A. C. Haddon; *Source Book for Social Origins*, by W. I. Thomas; *Misery and its Causes*, by E. T. Devine; *Product and Climate*, by S. N. Patten; *Woman Through the Ages*, by Emil Reich; *The Groundwork of Eugenics*, by Karl Pearson; *Chinese Immigration*, by Mary Coolidge; *Divorce, a Study in Social Causation*, by J. P. Lichtenberger; *A Study of the Population of Manhattanville*, by H. B. Woolston.

Classified lists of the abundant periodical literature may be found in the quarterly *Economic Bulletin*, or in *The American Journal of Sociology*.

EUGENICS, a term proposed by Francis Galton in 1883 (*Inquiries into Human Faculty and its Development*), was recently defined by him as "the study of agencies under social control, that may improve or impair the racial qualities of future generations either physically or mentally." The advocates of eugenics maintain that in so far as the present means to human betterment—such as education and public hygiene—merely develop and preserve, but do not produce, talent and ability they are insufficient. Talent and ability, they say, must be inherited before they can be cultivated.

Eugenic measures will, the "eugenists" believe, tend to eliminate the unhealthy and feeble in body and mind, and will tend also to the numerical increase of persons of superior mental and physical endowment. They argue that while human knowledge and human responsibility are cumulative in civilized societies—each generation picking up and augmenting the traditions of previous generations—native ability tends to remain unchanged, except as man voluntarily interferes in his own behalf. They point out that "humane" impulses and practices so ameliorate the struggle for existence as that the degenerate and the "unfit" survive and propagate their kind. Upon its scientific side, eugenics is dependent upon biology and psychology; upon biology for data and methods in pursuing the study of inheritance, and upon psychology for the definition and measurement of ability and for means of registering the transmission of mental capabilities from parent to offspring. As an art, eugenics proposes practical measures which look to the purification of the stock. These measures include (1) dissemination of knowledge of the laws of heredity, (2) establishment of the social value of human grades and classes (soldiers, scholars, skilled laborers, the wealthy, the pauperized, and the like), (3) research into the biographical histories of thriving "eugenic" families, (4) the reform of public opinion in matters pertaining to marriage and productivity, and (5) the enactment of legislation for the protection of the community, by preventive measures, from vicious, insane, defective, tainted and diseased strains.

Galton was not only the founder of eugenics; he has also framed its ideals and, in part, formulated its methods. At present, much of its statistical work is carried on by the English school of biometricians under the leadership of Professor Karl Pearson. A Eugenics Laboratory was recently established at the University of London. Many separate factors have contributed to the rapid growth of the doctrine and practice of eugenics within the last decade. Among them may be mentioned the deep current interest in the biological and psychological problems of heredity, the development of statistical and experimental methods in the study of evolution, public interest in the question of "race suicide," and the outcome of earlier pioneering studies in eugenics which have emphasized, almost without exception, the importance of the hereditary factor in individual endowment of mind and body. Consult Galton, *Hereditary Genius* (2d ed., 1892), *Natural Inheritance* (1889), *Eugenics, its Definition, Scope and Aims* (1904), Ellis, *A Study of British Genius* (1904), Pearson, *The Scope and Importance to the State of the Science of Natural Eugenics* (2d ed., 1909), Bentley, *Mental Inheritance* (1909), Saleeby, *Parenthood and Race Culture* (1909). Among periodicals and occasional publications may be mentioned *The Eugenics Review*, *Biometrika*, and the publications of the Francis Galton Eugenics Laboratory of the University of London.

SOILS. In previous reviews attention was called to the steps which were being taken to conserve the resources, and to increase the products of the soil, both by extending the tilled area and increasing the yield per acre. The rapid rise in price of farm products in recent years, has stimulated renewed activity in this

direction, not only in the United States, but throughout the civilized world. There has been great activity in the taking of an inventory of soil resources and possibilities, with a view to increasing agricultural production. It has been made evident that the supply of products of the soil has not kept pace in recent years with the demands, and the resulting era of high prices has developed both the need and the incentive for improved methods of soil culture, as well as for the extension of the cultivated area.

The investigations of the Bureau of Soils of the United States Department of Agriculture, tend to show that strictly there is no such thing as exhausted soils, but rather a decline in productiveness, which may be completely restored by proper methods of soil management, and European experience is cited to maintain this view, evidence being presented to show that better crops are obtained in many cases on soils which have been longest under cultivation. Experiments at the Ohio Station, covering a number of years, also show that very unproductive soils may be made highly productive under continuous culture, by proper methods of rotation, cultivation, and fertilizing. Soils tend to renew themselves in time from below, surface erosion by wind and water, and exhaustion by cropping being in part made up for by such renewal. Fertilizers and manures, with a suitable system of cropping, however, furnish quicker means than nature's processes of restoring or increasing productiveness.

Soil surveys taking account of soil resources and possibilities, and crop adaptations were actively carried on in various parts of the world during 1909. The Bureau of Soils of the United States Department of Agriculture was actively engaged in such work. Forty-five areas in twenty States were surveyed and mapped, 24,436 square miles, on a scale of one inch to the mile, and 76,180 square miles on a scale of one inch to six miles. The reconnaissance surveys were made on the Great Plains and mountain regions where more detailed surveys were not considered so necessary. The total area which had been mapped by the Bureau of Soils up to June 30, 1909, was 257,694 square miles. Several of the States organized soil surveys either independently or in cooperation with the national Bureau of Soils. Activity in this line was also reported in Russia, France, Germany, Belgium, Australia, India, and Africa.

Professor Bottomley, of Kings College, London, announced the discovery of a culture of organisms which assimilated free nitrogen in symbiosis with nonleguminous plants, but his claims have not been substantiated by the work of other investigators. Much new knowledge was acquired by investigations on the conditions affecting the transformation of nitrogen compounds in the soil—ammonification, nitrification, and denitrification. Among the interesting and important facts brought out was that partial sterilization of soils by heating or by means of antiseptics, such as carbon bisulphid, toluene, etc., increased the formation of ammonia and hence the fertility of soils. It appeared that the effect of the treatment was to aid the action of certain of the beneficial organisms by killing competing organisms, whose remains also serve as food for the ammonifying organisms. Heating, however, was shown to seriously interfere with nitrification. Investigations were reported which showed that the application of lime

strongly aids the formation of ammonia by bacterial action. Investigations at the Rothamsted Experiment Station, showed that the long-continued use of ammonium sulphate and of chlorids rendered the soil acid and stopped nitrification. A. R. Whitson, of the Wisconsin Experiment Station, showed that naturally acid soils are as a rule deficient in phosphates. In the development of the theories of soil fertility of the Bureau of Soils of the United States Department of Agriculture, O. Schreiner of that Bureau adduced further evidence to show that soil fatigue and unproductiveness may be the result of the accumulation of toxic organic compounds in the soil. Recent investigations by Bohland, Loew, May, and others indicate that colloids and enzymes play an important rôle in soil fertility, but their exact function has not yet been clearly defined.

An important contribution to the literature of soils was a treatise on soils by T. L. Lyon and E. O. Fippin, of Cornell University.

SOLAR SYSTEM. See **ASTRONOMY.**

SOLOMON ISLANDS. The British Islands lie in the western Pacific, and include Guadalcanar, San Christoval, Malaita, New Georgia, Yela, Tulagi, Santa Cruz, Vanicoro, and the islands (Choiseul, Ysabel, Lord Howe's group, and those in the Bourgainville Straits) ceded by Germany in 1899. (See also **GERMAN SOLOMON ISLANDS.**) Area, 8357 square miles, population, Europeans, 210; natives, 150,700—Melanesians, mostly cannibals. Capital, Tulagi. Imports, 1907, £49,252, exports (cocoanuts, pineapples, bananas, copra, pearl shell, and ivory nuts), £51,602. Revenue, 1908-9, £10,604; expenditures, £12,618. Resident-Commissioner (1909), Charles M. Woodford.

SOMALILAND. The most eastern part of Africa, on the Gulf of Aden and the Indian Ocean. See **BRITISH SOMALILAND**; **FRENCH SOMALI COAST**; and **ITALIAN SOMALILAND**.

SONNENTHAL, ADOLF RITTER VON. An Austrian actor, died March, 1909. He was born in 1834, in Pesth and his early years were spent in a tailor's shop. His father, a tradesman, had been ruined in the troubles of 1848. His chief desire, however, was for the stage, and he became a voluntary supernumerary in a theatre in Vienna. He soon found regular employment as an actor in a provincial town, but when he appeared first in Vienna, he was hissed off the stage, chiefly because of his Hebrew parentage. In spite of this he was retained, and though strong antagonism was shown toward him for some time, he gradually won his way to public favor, and finally established himself as the favorite actor of Vienna. In 1854 he made a notable triumph as Hamlet, and from that time his advancement was rapid. He became, in 1856, a regular member of the Hofburg Theatre, and in 1881 the celebration of his 25th anniversary there was almost a national event. Sonnenthal visited the United States in 1885, and again in 1899 and 1902. His versatility and the simplicity and truthfulness of his methods, and the vividness of his interpretations stamped him as one of the greatest actors of modern times.

SOROLLA Y BASTIDA, JOAQUIN. See **PAINTING.**

SOUTH AFRICA, BRITISH. A group of British possessions consisting of Cape Colony,

Natal (including Zululand), the Transvaal, Orange River Colony (these four self-governing), Southern Rhodesia, Basutoland, Bechuanaland Protectorate, and Swaziland. For statistical details and other information concerning the several colonies and protectorates, see the respective titles. The total area of British South Africa is estimated at over 914,000 square miles. In 1904 the white population numbered 1,135,016, and the colored, 5,198,175; the total estimated population in 1907 was 6,724,480. Importations into the territory embraced in the South African Customs Union were valued in 1907 at £25,920,278; in 1908, £24,438,266; in the two years Great Britain supplied 57 and 56.2 per cent. respectively; Germany, 7.6 and 8.7 per cent.; the United States, 7.8 and 8.2 per cent. Statistics for the first six months of 1909 showed the first increase in imports since the Boer War.

Beyond the limits of the colonies proper, administration is in the hands of the High Commissioner for South Africa (in 1909, and from March 2, 1905, the Earl of Selborne).

HISTORY

SOUTH AFRICAN UNION. The movement for closer union among the four colonies of South Africa culminated in 1908 in the convention for closer union, which met at Durban on October 9 of that year. It reassembled at Cape Town on January 11, 1909, and proceeded rapidly with the drafting of the constitution. This was completed in February and the convention adjourned. The draft of the constitution was submitted to the four colonial parliaments during March. Several points of difference revealed themselves in the discussion before the convention and afterwards in the separate colonies. In the first place there was a dispute as to the situation of the capital between the respective advocates of Pretoria and Cape Town, but this was finally settled by making Pretoria the administrative centre and Cape Town the meeting place for the Federal Parliament. The distance between the two cities is 48 hours. Although the particularist feeling of the colonies offered an obstacle from the first, there was substantial agreement between such divergent types of public men as Dr. Jameson, General Botha, Sir George Farrar, General Hertzog, Mr. Brown, and others, whose devotion to the common cause was significant. There had been, moreover, of late signs of a national tendency among the colonies, as shown in a greater degree of commercial coöperation between them, an increase in the interchange of products, and a growing appreciation of the need of a common system of defense. The chief opposition to the draft came from Natal, where most of the newspapers either advised its rejection or demanded amendments so radical as to amount to the same thing. There was also a vigorous opposition element in Cape Colony. The main difficulty was the reconciliation of the interests of the inland and coastal colonies, and at one time the opposition in Natal and on the part of the Bund in Cape Colony threatened the success of the measure.

The draft was accepted by the Transvaal and the Orange River Colony early in April, and after some delay and the insistence upon various amendments, passed both the Cape Colony and the Natal legislatures, and was referred





COPYRIGHT, 1903, BY L. L. POATES ENGINE'G CO., N.Y.

to the National Convention which reassembled at Bloemfontein on May 3. Meanwhile, at the end of March, the natives of the four colonies had sent representatives to Bloemfontein, who, at their meeting, resolved to appeal to the Imperial government on behalf of the protectorates and to declare that Cape Colony alone accorded the native element a just and sympathetic treatment. The amendments passed by the Natal Legislative Assembly strengthened the position of the Provincial Councils and included provisions that there should be no reduction of the original number of representatives in the Union Parliament, that there should be free-trade in the interior, and that no amendments to the constitution should be made except by the absolute majority of both houses. The hostility to union in Natal was stimulated by the enemies of the Mozambique agreement, a large part of the commercial class resenting the Transvaal's pledge of a greater part of the exports and imports to a foreign port for a period of ten years. In Cape Colony the chief opposition came from Mr. Schreiner and his followers, who were opposed to the limitation of the native vote. The amendments demanded by the Cape Parliament aimed at a preference for all the rural constituencies in order to retain for the Boer element, which made up the rural population, its present advantages. They also demanded a hard-and-fast system of equality between the two languages. The revision of the draft was completed by the convention on May 8 and signed on May 9. A number of important amendments were adopted to conciliate the interests of the colonies. The amended act was adopted on June 2 by the Parliaments of the Transvaal and the Orange River Colony, and later in the month by Natal and Cape Colony.

At the beginning of July nineteen delegates from the colonies, including four of the Prime Ministers, arrived in London with a draft of the measure. It passed both Houses in the summer and received the royal assent on September 20. The chief objection to it in England was the clause limiting representation in the Union Parliament to persons of European descent. Mr. Schreiner, who arrived in England on July 3, presented a petition to Parliament signed by Sir Gordon Sprigg and other leading men, asking the Imperial Parliament to protect "the principle of freedom of opportunity to all civilized citizens of whatever race or color" and condemning this discrimination against the natives by the requirement of European descent as a qualification of membership in the Union Senate and Assembly. It declared that the native population would become disaffected and that they were already incensed because in determining the proportion of the Cape representatives in the Union Parliament, the 22,000 native voters were not counted. A good many of the natives, however, were opposed to Mr. Schreiner's course. (See CAPE COLONY.) Although there was much regret in the British Parliament in regard to this native clause, it was decided not to insist on any modification against the wishes of the delegates. It seemed unwise to run the risk of wrecking the measure, and it was argued that if the change was to be made it must originate in South Africa itself. The natives retain their franchise in Cape Colony, and it is provided that this shall not be changed except by a two-thirds vote of

both Houses of Parliament, but the qualification of European descent for membership in either House excludes them from the Union Parliament, although they may sit in the new Provincial Council.

CONSTITUTION. The union may be declared by royal proclamation within a year after the passage of the act under the name of the Union of South Africa, the names of the colonies to remain as at present except that the Orange River Colony becomes the Orange River Free State.

Executive. The executive authority is vested in the King, by whom a governor-general of the Union of South Africa shall be appointed at a salary of £10,000 a year. The Governor-General is assisted by an Executive Council, whose functions are advisory. As representative of the King he is the commander-in-chief of the army and navy. All bills passed by the Union Parliament require his assent and they may be disallowed by the King within a year. The Governor-General in Council shall control and administer native affairs and matters affecting the Asiatics.

Parliament. The legislature consists of a Senate and House of Assembly. The Senate has 40 members, eight chosen by each of the four provinces and eight nominated by the Governor-General in Council. Of the eight nominated Senators four are to be chosen for thorough acquaintance with the wants of the natives. Each Senator must be thirty years old and have lived five years within the limits of the Union; must be qualified to register as a voter for the Assembly members from the province, and must be a British subject of European descent. Each elected Senator must be the owner of real property to the value of £500 over and above mortgage. The House of Assembly is to consist of 121 members chosen directly by voters: 51 from the Cape of Good Hope, 17 from Natal, 17 from the Orange Free State and 36 from the Transvaal. They must be British subjects of European descent who have resided five years within the limits of the Union and are to be elected according to the present colonial franchise unless Parliament changes by law the existing qualifications, and voters shall not be disqualified solely for race or color in the Colony of the Cape of Good Hope except by a two-thirds vote of Parliament.

If differences arise between the two Houses they are to be decided in joint session by the majority. A special commission is created for delimiting the constituencies on the basis of European adult males. There is to be an automatic redistribution of seats every five years. When the number of members of the Assembly is 150, the representation of provinces is to be solely according to their European adult male population, and there is to be no further increase unless Parliament specially provides for it. There is the same rule as to the oath of allegiance or affirmation as for the British Parliament. The Union government assumes the debts of the colonies and the control of harbors, ports and railroads, a Minister and a permanent Advisory Board of three having charge of the last named. The Protectorates are to be taken over by the Union government at some future date, on terms set forth in the constitution. A Public Service Commission, with powers to be determined by Parliament, is

to be appointed by the Governor-General to deal with the appointment, discipline, retirement and superannuation of public officers.

PROVINCIAL GOVERNMENTS. The provinces are to correspond to the present colonies, and each is to have at its head an administrator (appointed by the Governor-General), an Executive Committee, and a Provincial Council consisting of 25 members, or a number equal to that of the members which the Province sends to the Union Parliament. The ordinances of the Provincial Councils are subject to Federal veto. Matters not specified are under the jurisdiction of the Union Government. The Provincial Council of the Province has jurisdiction in the following matters: Direct taxation for provincial revenue; borrowing money with the consent of the Governor-General in Council; education (except higher education) for five years, and until Parliament otherwise provides; agriculture, under limitations fixed by Parliament; hospitals, and charitable institutions; municipal institutions, divisional councils and other local bodies; local public works, with the exception of railroads, ports, harbors and other works which extend beyond the borders of the Province, subject to the power of Parliament to declare such works national; roads, bridges, etc., except when uniting two provinces; markets and pounds; protection of fish and game; the administration of punishment in the enforcement of law within the provincial competence; all other matters which in the opinion of the Governor-General in Council are local or private, or in regard to which Parliament delegates to the province power to legislate.

The election of Senators and of members of the executive committees of the Provincial Councils is to be by proportional representation, each voter having one transferable vote.

CAPITALS. The government offices are to be at Pretoria, and the Federal Parliament is to meet to Cape Town. The provincial capitals are to be the same as at present, namely, Cape Town, Pretoria, Bloemfontein and Pietermaritzburg.

LANGUAGE. Equal rights are prescribed for the Dutch and English tongues as official languages.

JUDICIARY. A Supreme Court of South Africa is to be established of which the colonial Supreme Courts are to be parts. Appeal is to lie in the Supreme Court of South Africa, and thence to the Privy Council in cases in which the Privy Council grants special leave.

At the instance of the South African delegates, the British government decided on May 31, 1910, as the date for the act to go into effect, and on December 3, a royal proclamation was published "that on and after the 31st of May, 1910, the colonies of the Cape of Good Hope, Natal, the Transvaal and the Orange River Colony, shall be united in a legislative union and government under the title Union of South Africa."

SOUTH ARABIA. See **EXPLORATION.**

SOUTH AUSTRALIA. A state of the Australian Commonwealth. Area, 903,690 square miles. Population at end of 1908, 407,179. On the same date the capital, Adelaide, had, with suburbs, 179,793 inhabitants. The executive authority is vested in a governor, appointed by the Crown and acting through a responsible Ministry. The Parliament consists of the Legislative Council (18 members) and

the House of Assembly (41 members). Women as well as men possess the suffrage. The Governor in 1900 was Admiral Sir Day Hord Bosanquet; the Premier, Treasurer, and Minister of Education, A. H. Peake. Parliament opened on July 22. The Premier, Mr. A. H. Peake, had formed a Ministry out of his own party, refusing the terms demanded by the Labor party as the price of its support. A resolution of no confidence was introduced by the Labor party in August, but was rejected by a majority of one. The Premier in his budget speech on September 23 announced a surplus of £291,000, which was to be applied to the reduction of the public debt. No new taxation was necessary. He referred to the flourishing conditions of trade and of agricultural and pastoral occupations. In October a Parliamentary Commission strongly recommended the building of 100 miles of railway, to open up important agricultural regions, and legislation was promised at an early date.

SOUTH CAROLINA. One of the South Central Division of the United States. Its area is 30,989 square miles. The population in 1909, according to a Federal estimate made in that year, was 2,142,084.

MINERAL PRODUCTION. The chief mineral productions of South Carolina are those connected with phosphate rock. The production in 1908 was 225,495 tons, valued at \$989,881. This was a decrease over the production of 1907, which was 257,221 tons, but it was greater in value than in 1907, which was \$980,867. Phosphate beds occur interruptedly in a belt, the lower limit of which extends along a line from a point near the source of the Wanda River in Charleston county to the mouth of Broad River. The belt follows the coast, running back as far as 20 miles from the ocean. Phosphate rock occurs in two forms, as land rock and as river rock. River rock is mined from the river channels. Next to phosphate rock in value are the products of clay. In 1908 these amounted in value to \$615,248, a considerable decrease over the product of 1907, which was \$843,379. Stone is produced in considerable quantities, and gold also occurs. It was found in 1908 to the value of \$53,715 from 2598.46 fine ounces. A small amount of silver and copper is also found. The gold output of 1908 was obtained from two placers and five deep mines. Among other products are stone, gas, coke, gas and coal oil. Monazite is produced in the State. In 1908 there were mined 112,450 pounds, valued at \$13,494. Kaolin, fire clay, peat and tin are also found in the State, and there are deposits of iron in various places. The value of the mineral products of the State in 1908 was \$2,081,001, as compared with a value of the product in 1907 of \$2,305,203.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 37,041,000 bushels, valued at \$33,337,000, from 2,218,000 acres; winter wheat, 3,610,000 bushels, valued at \$5,563,000, from 381,000 acres; oats, 4,431,000 bushels, valued at \$3,190,000, from 211,000 acres; rye, 39,000 bushels, valued at \$55,000, from 4000 acres; rice, 476,000 bushels, valued at \$433,000, from 18,600 acres; potatoes, 765,000 bushels, valued at \$880,000, from 9000

acres; hay, 81,000 tons, valued at \$1,256,000, from 66,000 acres; tobacco, 32,000,000 pounds, valued at \$2,336,000, from 40,000 acres. The cotton crop in 1909 was estimated at 1,095,000 bales, which was a decrease from the crop of 1908, which was 1,118,000 bales. In the production of rice the State was exceeded only by Louisiana, Texas, and Arkansas. The rice crop of 1909 was slightly smaller than that of 1908, which was 480,000 bushels. The acreage of rice has greatly decreased in recent years. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 87,000; mules, 144,000; dairy cows, 140,000; other cattle, 227,000; sheep, 56,000; swine, 699,000. The wool clipped in 1909 was estimated at 155,760 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$288,330. Of these products the most important in point of value was oysters, of which there were taken for market purposes 1,563,100 bushels, valued at \$136,790. Next in point of value were shad, of which 464,400 pounds, valued at \$40,730, were taken. Following in the order of the value of the products were sea bass, \$21,740; whiting, \$17,450; shrimp, \$11,980; and prawn, \$7270. Other fish taken in considerable quantities were shark, sheepshead, squeteague or trout, terrapin and clams. The number of independent fishermen engaged in the fisheries of the State was 1634, with 925 wage-earning fishermen employed. There were 106 vessels engaged in the fisheries of the State, valued at \$47,691.

EDUCATION. The total school enrollment in 1908-9 was 334,902. Of these, white males numbered 74,034; white females, 79,773; negro males numbered 83,164, and negro females, 97,931. The average salary of teachers was, for white males, \$470.79 per year; for white females, \$249.13; for negro males, \$118.17, and for negro females, \$91.45. The total expenditures for free public schools in 1909 was \$1,898,885, and for State colleges, \$527,000. The first direct appropriation to free public schools since 1878 was made for the year 1908-9.

FINANCE. The report of the Treasurer for the fiscal year 1909 showed a balance in the treasury on December 31, 1908, of \$424,370. The total receipts for the fiscal year 1909 were \$2,772,850 and the expenditures for the same period amounted to \$2,805,138, leaving a cash balance on December 31, 1909, of \$392,082. During the year the State borrowed for current expenses \$500,000.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: A measure was enacted requiring the electric railway companies to equip cars with closed vestibules in the winter time to protect motormen. A board of commissioners on uniformity of legislation was established. The manufacture and sale of commercial fertilizers was regulated. Unfair commercial discrimination between different sections of the State was prohibited, as well as unfair competition by selling goods in one locality at a low price to destroy business of competitors. It is made a misdemeanor to solicit orders for liquor. Banks in the State are required to accumulate a 25 per cent. reserve.

OFFICERS: Governor, M. F. Ansel; Lieutenant-Governor, T. G. McLeod; Secretary of State, R. M. McCown; Attorney-General, J. F. Lyon;

Treasurer, R. H. Jennings; Comptroller-General, A. W. Jones; Superintendent of Education, J. E. Swearingen; Adjutant-General, J. C. Boyd; Commissioner of Insurance, F. H. McMaster—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Ira B. Jones; Justices, C. A. Woods, Eugene B. Gary, D. E. Hydrick; Clerk, U. R. Brooks—all Democrats.

The State Legislature of 1909 was composed of 41 Democrats in the Senate, and 124 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

SOUTH DAKOTA. One of the North Central Division of the United States. Its area is 77,614 square miles. The population in 1909, according to a Federal estimate made in that year, was 498,077.

MINERAL PRODUCTION. The only mineral product of considerable importance in the State is gold. The total value of all products in 1908 was \$8,528,234, of which the gold produced was valued at \$7,742,200 from 374,529 fine ounces. This was a marked increase over the production of 1907, which was 200,185 fine ounces, valued at \$4,138,200. Gold is produced almost entirely in the Black Hills from the Homestake mine. Several new mills were built in 1908. Silver was produced in 1908 to the value of \$105,500 from 197,300 fine ounces, an increase over the production of 1907, which was 106,600 fine ounces, with a value of \$70,400. The only other mineral products of importance are stone, clay products, lead and natural gas.

The gold production in 1909 was estimated at 331,363 fine ounces valued at \$6,849,100. This was a decrease of \$892,300 in value from the production of 1908. The silver production was estimated at 205,600 fine ounces, valued at \$107,000.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 65,270,000 bushels, valued at \$32,635,000, from 2,059,000 acres; winter wheat, 47,588,000 bushels, valued at \$42,820,000, from 3,375,000 acres; oats, 43,500,000 bushels, valued at \$14,790,000, from 1,450,000 acres; barley, 19,910,000 bushels, valued at \$8,960,000, from 1,021,000 acres; rye, 578,000 bushels, valued at \$341,000, from 33,000 acres; flaxseed, 5,640,000 bushels, valued at \$8,516,000, from 600,000 acres; potatoes, 4,000,000 bushels, valued at \$2,520,000, from 50,000 acres; hay, 804,000 tons, valued at \$4,100,000, from 536,000 acres. In the production of flax the State ranks second, being surpassed only by North Dakota. The production of flaxseed was slightly smaller than that of 1908, which was 5,885,000 bushels. In the production of barley South Dakota occupies fourth rank. The crop of barley in 1909 was considerably smaller than in 1908, when it was 24,592,000 bushels. A large area of the State is devoted to the cultivation of fruit. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 612,000; mules, 10,000; dairy cows, 656,000; other cattle, 1,341,000; sheep, 829,000; swine, 805,000. The wool clipped in the State was 4,334,880 pounds.

EDUCATION. There were enrolled in the schools of the State for the year 1907-8 117,609

pupils, which was 24.13 per cent. of the population. The average daily attendance was 72,363 and the number of teachers employed was 5555.

FINANCE. The report of the State Auditor for the fiscal year ending June 30, 1909, shows receipts, including cash on hand July 1, 1908, of \$4,148,734. The total disbursements during the year were \$3,358,847, leaving a cash balance on June 30, 1909, of \$789,886. The chief receipts were from the general fund, from the special and permanent school fund, and from taxation.

CHARITIES AND CORRECTIONS. The charitable and penal institutions of the State include a School for the Blind at Gary, a State Training School at Plankinton, a School for Deaf Mutes at Sioux Falls, a School for Feeble-Minded at Redfield, a Hospital for the Insane at Yankton, State Penitentiary at Sioux Falls, and Soldiers' Home at Hot Springs. In addition to these there is a Hospital for Insane Indians at Canton, established and maintained by the Federal government.

POLITICS AND GOVERNMENT. On January 20 Coe I. Crawford was elected United States Senator by the legislature. Senator Crawford had been the choice for Senator at the primary election in 1908. A two-cent fare bill was passed by the legislature and was signed by Governor Vessey on February 3. Opposition on the part of the railroads was at once begun and a temporary injunction was procured on February 4. An equal suffrage amendment to the Constitution passed the Senate on January 21 without debate and with but two dissenting votes. Measures were passed by the legislature regulating the sale of liquor, to be voted on in November, 1910, under initiative. A voluntary bank guaranty law was passed, but no attempt to comply with it has been made. Appropriation was made for completing and furnishing the new State House at Pierre. The people will vote on five laws in 1910, four being passed by the legislature, and one initiated by the people. In August President Taft issued a proclamation formally opening the ceded portions of the Cheyenne River and Standing Rock Indian reservations for settlement. Over 80,000 persons registered for the 10,000 homesteads available upon these ceded lands. At the election of 1908 the inhabitants of Butte county voted to divide that county into three parts, the southern portion to remain as Butte county, the northwestern as Harding and the northeastern as Perkins. These counties were organized in 1909 by Governor Vessey. The legislature also created Corson county out of a portion of the Standing Rock Reservation and it was duly organized with the county seat at McIntosh. Tripp county was also organized, with the county seat at Colombe. See **ELECTORAL REFORM.**

LEGISLATION. Among the measures enacted by the legislative session of 1909 are those noted below: A law was passed providing a maximum of two cents a mile for passenger fares. Railway companies are penalized for delay in adjusting claims; telephone offices are placed under the jurisdiction of railroad commissioners; provision is made for actions for injury by wrongful death, and the maximum of recovery is fixed at \$10,000. Standard forms of fire or life insurance policies are ordained; trusts and monopolies are prohibited; provision

is made for primary elections; a live-stock sanitary board is established; measures are taken to prevent the spread of disease among sheep and bees; pure food and pure drug laws were enacted; measures were passed regulating hotels; provision is made for the planting and care of forest trees, and the inspection of nurseries and imported trees to prevent the introduction and spread of injurious insects; an indeterminate sentence is allowed in some cases of first offense, and provision is made for a portion of a convict's earnings to be devoted to the support of his dependent family.

OFFICERS: Governor, R. S. Vessey; Lieutenant-Governor, H. C. Shober; Secretary of State, R. S. Polley; Treasurer, George Johnson; Auditor, John Herning; Attorney-General, S. W. Clark; Superintendent of Education, H. A. Ustrud; Commissioner of Lands, O. C. Dokken—all Republicans.

JUDICIARY. Supreme Court: Presiding Judge, Dick Haney; Justices, Charles S. Whiting, Elleson G. Smith, J. H. McCoy and Dighton Corson; Clerk, Frank Crane—all Republicans.

The State Legislature of 1909 was composed of 39 Republicans and 6 Democrats in the Senate, and 95 Republicans and 9 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

SOUTHERN CHILD LABOR CONFERENCE. See CHILD LABOR.

SOUTHERN NIGERIA. A British colony and protectorate formed by the union of the former Colony and Protectorate of Lagos and the Protectorate of Southern Nigeria (since May, 1906). Area, 77,260 square miles; population, estimated in 1906, about six millions, Yorubas predominating. Capital, Lagos. There are government and mission schools. Agriculture is the chief industry, and the production of cotton is rapidly increasing; the output in 1903 was 500 bales (of 400 pounds each), in 1907, 9700 bales, in 1908, 550 (declined on account of drought), in 1909 (estimated), over 12,000 bales. Corn, palm oil and kernels, ivory, gum copal, and rubber are also produced. Imports and exports amounted in 1908 to £4,284,830 (Great Britain, £3,285,509), and £3,409,288 (Great Britain, £1,778,158) respectively, against £4,438,906 and £4,202,704 in 1907. Lagos (57,000 inhabitants), is the chief port, and has been greatly improved to accommodate the increasing tonnage. The town, however, is overpopulated, money is scarce, and the increase in the price of food-stuffs has resulted in "hard times." Other trade centres are Calabar, Opobo, Bonny, New Calabar, etc. A railway has been built from Iddo Island via Ilorin to Jebba (304 miles), and is being extended via Zungeru (N. Nigeria) to the line now under construction between Baro and Kano. Total tonnage entered and cleared (1907), 1,396,307. Revenue and expenditure (1908), £1,387,975 and £1,357,763, against £1,459,554 and £1,217,337 in 1907. Governor and Commander-in-Chief (1909), Sir Walter Egerton.

HISTORY. The Anglo-German Boundary Commission under Lieutenant-Colonel Whitlock and Major Haering, which began its work in December, 1908, continued, during the early part of 1909, its task of delimiting the frontier between Nigeria and the German Kamerun. They started in a single column on December 24, but

subsequently divided into several columns in order to take separate surveys. The natives were hostile and several engagements took place, in one of which the leader of a German detachment was wounded and two of his soldiers killed and others wounded. It was reported in April that the work was completed, and that a provisional line was agreed upon. A committee was appointed by the British government in February to inquire into the liquor trade with the natives, and it reported in October that the liquor sold was of reasonably good quality, and that no physical deterioration, diseases or other injurious consequences could be traced to its sale. The people were characterized as little inclined to habits of excess, and their condition was said to contrast favorably with the negroes of other colonies.

SPAIN. A constitutional monarchy of western Europe. Capital, Madrid.

AREA AND POPULATION. Total area, including the Balearic and Canary Islands and the Spanish possessions of the north and west coasts of Africa, 194,794 square miles; area of continental Spain, 190,050 square miles. Population (1900), 18,831,574; 9,087,821 males, 9,530,265 females; estimated population, December 31, 1908, 19,712,585. In 1908 there were 141,046 marriages, 657,699 births, 460,942 deaths; giving an excess of births over deaths of 196,759. Emigration (chiefly to Argentina, Brazil, Cuba, and Mexico), 130,640 in 1907. Population of principal cities (1909): Madrid, 539,835; Barcelona, 530,344; Valencia, 163,425; Seville, 145,721; Malaga, 112,971; Saragossa, 81,639.

EDUCATION AND RELIGION. In 1907 the total sum expended for education and the arts was 47,978,439 pesetas. There are about 26,000 public schools, with 2,000,000 pupils; 6000 private schools, 350,000 pupils. Every province has a secondary institution which prepares for the universities, of which there are nine. There is also a medical faculty at Cadiz, and a law faculty at Oviedo. Of the 3253 religious communities, 294 for men and 910 for women are devoted to education. A large proportion of the inhabitants are illiterate: 68.1 per cent. in 1889. With the exception of about 7000 Protestants and about 4000 Jews, the population is Roman Catholic. The state contributes annually about 41,000,000 pesetas to the support of the church. The religious orders have a large and influential membership and include about 10,630 monks and 40,040 nuns. Protestant worship is not tolerated in public, though a limited private liberty is allowed.

AGRICULTURE. Spain is the second largest producer of olives in the world, Italy being the first; of the 3,198,477 acres under this crop, 1,776,594 are in Andalusia. The average total yield is 1,400,000 tons of olives and 69,000,000 gallons of oil. From 1,000,000 to 3,000,000 kilos of oil are shipped annually to Italy, to be mixed with the Italian product and reshipped under Italian labels. Spain is third on the list of the world's greatest wine producers (France, Italy). The wine production of 1908 was 473,000,000 gallons, against 464,640,000 gallons in 1907. (See LIQUORS, FERMENTED AND DISTILLED.) The cereal production (1907) was as follows: Wheat, 100,331,000 bushels; corn, 30,000,000; oats, 16,998,000. The total area sown to rice in 1909 was estimated at 76,570 acres, with a total

production of 183,770 tons of rice in husk, or an average of 2.4 tons to the acre. The crop of sugar beets in 1908-9 amounted to 750,000 tons; of sugar cane, 250,000 tons. The live-stock statistics for 1908 were as follows: Horses, 445,776; mules and asses, 1,622,282; cows, 2,452,197; sheep, 16,119,051; goats, 3,355,404; swine, 2,120,177.

MINING. The total number of mine employees in 1906 was 118,201 (2725 women and 4373 boys). The value in pesetas of the output of the more important minerals in 1907 was as follows: Copper, 66,110,966; iron, 50,250,190; coal, 44,341,403; argentiferous lead, 35,206,081; lead, 23,214,259; zinc, 8,562,173; anthracite, 5,506,930; salt, 4,339,961; quicksilver, 3,720,018; lignite, 2,350,987; manganese, 1,059,899; iron pyrites, 1,055,315; silver, 1,010,307. The production of quicksilver in the Almaden mines in 1908 was 1,017,023 kilos, or 29,472 flasks; in the mines of Mieres, 50,565 kilos, or 1465 flasks; total, 1,067,588 kilos, or 30,937 flasks—4204 flasks less than in 1907.

MANUFACTURES. Among the principal industries are the manufactures of cotton textiles, sugar, paper, glass and olive oil. The cotton mills employ about 68,300 looms, with 2,614,500 spindles; 8000 looms, with 662,000 spindles, are used in woolen manufactures. There are 144 paper mills and 34 glass factories. About 30,000 tons of cork are prepared annually. The government holds monopolies of the fabrication and sale of matches and tobacco, each being granted to a company. There are 400 sardine factories, with 16,500 workmen; value of annual output, 15,000,000 pesetas.

FISHERIES. The total number of boats engaged in the sardine, tunny fish, and cod fisheries is about 14,700, with 67,000 fishermen. The value of the annual catch is estimated at 38,000,000 pesetas (1 peseta=19.3 cents).

COMMERCE. The imports for home consumption and exports of domestic produce are given in pesetas for three successive years as follows:

	1906	1907	1908
Imports....	933,945,957	947,813,634	966,552,856
Exports....	901,407,646	943,559,526	911,223,874

The principal articles of special commerce for 1907 were valued as follows:

Imports	Pesetas
Food substances	162,110,000
Cotton and cotton goods	154,764,000
Drugs and chemicals	111,269,000
Minerals and ceramics	101,433,000
Machinery	91,425,000
Animal products	86,461,000
Metal and metal manufactures.....	53,918,000
Timber	53,672,000
Textiles	26,727,000
Exports	Pesetas
Food substances	311,806,000
Minerals and ceramics	186,247,000
Metals and metal manufactures	153,852,000
Timber	69,710,000
Animal products	58,179,000
Cotton and cotton manufactures	57,292,000
Drugs and chemicals	36,223,000
Woolens	22,344,000
Paper	11,052,000

The wine export (1906) was valued at 71,610,428 pesetas. Exports of Malaga raisins to

all countries (1906), 11,440,504 pounds; 1907, 15,191,336; 1908, 12,577,423. Hides and skins showed (1907) imports, 20,296,700 pounds, exports, 16,247,006. Great Britain contributed (1907) imports to the value of 179,871,000 pesetas, and received exports valued at 295,285,000 pesetas; United States, 135,911,000 and 39,325,000; France, 130,350,000 and 163,633,000; Germany, 98,087,000 and 59,264,000; British India, 62,188,000 and 1,582,000; Portugal, 41,726,000 and 34,981,000.

COMMUNICATIONS. The Spanish railways are owned by private companies, but almost all have obtained government guarantees or subventions. The length of all railways in 1906 was 9195 miles; passengers carried, 45,062,312; goods, 23,711,852 tons; receipts, 308,903,514 pesetas; state duties on traffic, 21,164,852 pesetas. A new line is under construction between Valencia and Madrid, *via* Utiel, Motilla del Palancar, and Tarancon; construction and equipment to cost about \$6,000,000, exclusive of the government subsidy of 120,701 pesetas, or about \$21,000 per mile. The first section (54 miles), between Valencia and Utiel, is already completed and in operation. Length of telegraph lines in 1906, 20,749 miles; length of wire, 47,800; total number of messages carried during the year, 5,170,649. Number of telegraph stations, 1709; of post-offices, 4012; of telephone stations, 17,820. Postal receipts during the year amounted to 27,737,451 pesetas; expenses, 8,833,738. The merchant marine in 1908 comprised 504 steamers of 423,000 tons net, and 304 sailing vessels of 28,700 tons net. The shipping entered at Spanish ports in 1907 was 18,024,148 tons; cleared, 19,059,505. Work on the canal for the improvement of the navigation of the Guadalquivir was inaugurated March 25, 1909. The construction of this canal will allow steamers 427 feet length, 67 feet breadth, and 25 feet draft to go up the river 72 miles, or as far as Seville. Cost of construction up to July, 1909, about 3,000,000 pesetas. It is estimated that four years will be required to complete the work.

FINANCE. The unit of value is the peseta, valued at 19.3 cents. The revenue and expenditure for three successive fiscal years were as follows:

	1906	1907	1908
Revenue...	1,094,445,688	1,079,830,297	1,072,056,641
Expend're	992,863,222	1,009,443,561	1,025,908,048

The budget for 1909 estimated the revenues at 1,049,522,365 pesetas; expenditures, 1,043,799,854. The principal sources of revenue were estimated as follows: Direct taxes, 449,918,068; indirect taxes, 360,700,000; tobacco monopoly, lottery, etc., 191,550,000; from the public treasury, 25,415,250; national property, 17,939,047. Principal avenues of expenditure: Public debt, 407,853,141; War, 157,973,339; Public Works, etc., 99,544,891; Pensions, 74,519,000; Department of the Interior, 72,440,311; Education, 52,351,347; Marine, 48,787,405; Church, 41,236,455; Tax collecting, 34,424,781; Department of Finance, 17,486,526; Department of Justice, 16,432,964; civil list, 8,900,000; Department of State, 5,676,387. The budget for 1910 estimated the revenue and expenditure at 1,090,757,426 and 1,048,886,063 respectively.

The public debt stood, January 1, 1908, at 9,466,014,792 pesetas.

On December 19, 1908, the condition of the Bank of Spain was reported as follows: Cash in hand (gold, silver, and bronze), 1,292,506,000 pesetas; portfolio, 1,260,958,000; advances to Treasury, 150,000,000; property, 13,134,000; capital and reserve, 170,000,000; notes in circulation, 1,632,259,000; deposits and accounts current, 560,055,000. Savings bank deposits amounted December 31, 1908, to 202,655,000 pesetas. In 1906-7 no gold was coined; in 1906-7 no silver was coined.

NAVY. The effective navy in 1909 included: One second-class battleship of 9900 tons; 2 armored cruisers, 14,000 tons; one large protected cruiser, 9240 tons; 4 small protected cruisers, 14,050 tons; 4 torpedo-boat destroyers; 13 gunboats; 8 torpedo boats. In addition there were several school ships, dispatch boats, transports, etc. One second-class cruiser was building. A law passed January 7, 1908, provided for the construction of 3 battleships of 15,000 tons each, 4 gunboats of 800 tons each, 3 torpedo-boat destroyers, and 24 torpedo boats. It was provided that these vessels be built at Ferrol or Cartagena, and that these arsenals be reconstructed. On March 22, 1909, it was announced that the Minister of Marine had accepted the tender, as modified by the government, of the Spanish Shipbuilding Company, an Anglo-Spanish syndicate with which the English firms of Armstrong-Whitworth, John Brown, and Vickers-Maxim are associated. The company undertook to complete the work mentioned at a cost of about £7,000,000 and to build any further vessels required in the following seven years. In April, 1909, a transport steamer, built in Scotland for the Spanish government, was delivered at Ferrol.

ARMY. Service is obligatory but with numerous exceptions, and the army is maintained under the law of December 26, 1907, on a peace effective basis of 80,000, which may be increased at times to 100,000 if reduced on other occasions to compensate for the extra expense. Service is required for three years each in the active army and the first reserve, and six years in the second reserve. The military estimates of 1909 divided the army as follows: Infantry, 44,919; cavalry, 12,607, and artillery, 13,072. This army was divided into 59 regiments of regular infantry, 20 battalions of chasseurs, 4 African regiments, 2 regiments in the Balearic Isles, 2 regiments in the Canaries, recruiting cadres; 28 regiments of cavalry and 3 squadrons for foreign possessions; 13 regiments of field artillery, 1 regiment of siege artillery, 3 regiments of mountain artillery, all of which have 4 6-gun batteries, 14 fortress battalions, 1 central gunnery school, 1 central remount committee, and 4 companies of artificers. There were 4 regiments of sappers and miners, 1 pontoon regiment, telegraph and railway battalions, and other technical troops. The field artillery were rearmed with new Schneider field guns, and a number of these were sent to Melilla. The peace effective of the army in 1908 was 11,761 officers, 80,072 men, 17,205 horses, 1861 mules, and 521 cannon. There was a civil guard of 991 officers and 18,739 men, and the carabineros of 620 officers and 14,193 men. The total armed strength of the kingdom was estimated at 500,000 men.

GOVERNMENT. Spain is a constitutional monarchy, the executive resting in the King, who acts through a responsible council of Ministers; and the legislative power in the Cortes, a body composed of the Senate (360 members) and a congress of deputies (one to every 50,000 inhabitants). The Cortes meets annually. The present King, Alfonso XIII., was born May 17, 1886; was married, May 31, 1906, to Princess Victoria Eugénie of Battenberg. The heir-apparent, Prince Alfonso, was born May 10, 1907. Down to October 21 the Council was under the presidency of Señor Maura. On that date the Cabinet resigned and the succeeding Ministry was composed as follows: President of the Council (Premier) and Minister of the Interior, Señor Moret; State and Foreign Affairs, J. Perez Caballero; Finance, Alvarado; War, Lieutenant-General Luque; Marine, Admiral V. M. Concas; Justice, Martinez del Campo; Public Instruction and Fine Arts, Barosso; Agriculture, Commerce and Public Works, Gasset. See below, paragraphs on *History*.

HISTORY

BARCELONA RIOTS. During the last week in July a series of riots, amounting almost to a popular insurrection, occurred at Barcelona. No adequate explanation of its causes has been given, but the chief factor was the widespread discontent aroused by the conscriptions for the Riff war (see *MOROCCO*, paragraphs on *History*.) The war itself was unpopular and the calling out of the reservists aroused much indignation. A general strike and a rising of the mob followed, the centre of the disturbance being Barcelona, which for years past has been the scene of anarchistic violence and the field of socialist and revolutionary propagandism. In the course of the twenty-five years ending in 1908, there were 114 instances of bomb-throwing, in which 47 persons were killed and 241 wounded. The riots began on July 26, but no serious damage was done till the following day. During the night of July 27 over thirty convents, churches, and religious buildings were burned down or partially destroyed. After a brief interval of comparative calm the insurgents began to fire on the troops on July 29 and were met by a severe artillery fire. On July 30 more pillage and incendiarism were attempted, but the military guard succeeded gradually in enforcing order throughout the main part of the city. The Captain-General issued a proclamation urging the people to return to work, and on the evening of August 1 the shops began to open and on the following day there was a return to normal conditions. According to the official figures the number of the killed was 86. The number of prisoners taken during the riots and later was reported at 1500, of whom 1200 were under sentence or awaiting trial at the end of September. The number of the insurgents was estimated at 30,000, but the actual pillaging and burning was carried on by a small number.

The published accounts were conflicting. According to some, murder, outrage, and the mutilation of the nuns were common features of the affair. Others said the mob, though bent on the destruction of church property, abstained from killing, robbery and other forms of violence, deliberately throwing back into the flames any valuables that they found. They

said the earlier reports were exaggerated and denied that persons were killed or maltreated, characterizing the acts of the incendiaries as mild. The following account is based on the account of an American officer, General H. A. Reid, who was in the city at the time: The riots began on Monday, July 26, and lasted throughout the week, that is, to August 1. Early in the morning of July 26 shots were fired but no serious harm resulted, and a little later industry was generally suspended, agents having passed from one establishment to another and persuaded the workmen to join in the general strike. Street cars were stopped and traffic was generally suspended. At noon the Civil Governor transferred his authority to the Captain-General of the province and district. A railway bridge to the northwest of the city was destroyed. On the following day the troops patrolled the streets, but during the night there was widespread pillage, in the course of which thirty-four churches and convents were sacked and destroyed, and eighty-five others were sacked and partly destroyed. The firing in the streets was almost constant. During the three following days there was more shooting and a number of buildings were burned, but the work of the troops became more effective, especially the artillery. It was agreed on Saturday, which was pay-day, that the working men should all be paid on Monday if they presented themselves. The effect of this was quieting and on the invitation of the Captain-General to resume work, the shops gradually opened. General Reid declared that the official reports as to the number of troops, civilians and police killed and wounded, greatly understated the facts, and he agreed with those who declared that the mob's treatment of the nuns and priests was inhuman and even unspeakably brutal. The destruction of the religious institutions temporarily rendered 5000 children homeless. The method of destroying the buildings was first to enter by force, and then, while the sacking was going on, to soak the building with kerosene. When the sacking was complete the building was set on fire. It seemed that the labor population coöperated with the anarchists, who were very numerous throughout Catalonia. The Radical Republicans, who were accused of teaching anarchist doctrines, were said to number about 25,000 in Barcelona and 75,000 outside. Their leader during the last fifteen years in Cortes is Leroux, whose speeches have been of the fire-brand order.

The explanations of the situation varied with the party opinions of those who offered them. Some declared the movement to be the result of the anarchists' attempt to foment among the Catalans class agitation, taking advantage of the government's present unpopularity. Premier Maura pointed out that nowhere outside of Catalonia had repression by force been necessary, and that out of over 900 communes, only 15 had been the centre of disturbances and more than half of these in Catalonia. He declared the riots to be a purely revolutionary anarchistic movement which took advantage of the departure of the troops and the anti-war feeling to arouse the masses. Another account asserted that the opinion prevailed among the rioters that a republic was to be declared and that the rising was aimed distinctly at the establishment of a new régime.

It was said that Barcelona was no more hostile to the war than any other city. The Attorney-General's report on the rising was published at the end of September. It referred to the widespread anarchist and socialist propaganda and declared that public meetings, publications, schools and even the popular entertainments had for a long time been made the means of spreading the doctrines of disorganization—free love, atheism, the view that property is robbery, that killing on the highway is no worse than in war, etc. Martial law in Barcelona was enforced at the beginning of the riots but was discontinued about the middle of August.

THE TRIAL AND EXECUTION OF PROFESSOR FERRER. On September 1, Professor Ferrer (q. v.), the well-known Socialist agitator and educator, the founder and head of the so-called "Modern School" in Barcelona, was arrested in the charge of being a notorious anarchist, implicated in the Barcelona rising. Incriminating documents were reported to have been found in his house concerning a revolutionary proclamation. His arrest aroused great resentment among the Socialists of all countries, especially in France, where a committee of prominent citizens was formed to protest against the arrest. Even among the more conservative element in foreign countries there was much criticism of the Spanish government's methods. The critics declared that the government was animated by political motives and that Ferrer's arrest was not justified by the evidence against him. In Spain the more moderate members of the Opposition charged the government with having given foreigners ground for criticism by confusing the general basis of Ferrer's prosecution, that is by mixing the question of liberty of conscience and freedom of speech with that of criminal agitation. They said that the government, having shut up the lay schools and exiled the professors, had given the general impression that it was not pursuing Ferrer the criminal agitator, but Ferrer the educator of the workingmen. On the other hand, the Minister of the Interior, Señor de la Cierva, declared that most of the attacks of the foreign press were really due to the propaganda of international anarchism and were founded on false representation. He said that those who demanded that Ferrer should be tried by civil court instead of by court-martial made two unwarrantable assumptions, first, that the government could interfere, and second, that military courts were not fair. Both the military and civil courts were, he said, independent, and beyond the interference of the government, being the absolute and sole judges of their own competence. Military law, moreover, gave the same guarantees as the civil law for the defense of the accused, and the same laws of evidence were observed. The sittings were held in public and the defense was entitled to counsel. The sentence was submitted to the Captain-General and his legal adviser, and if either disapproved it was referred to the Supreme Court Martial in Madrid. The trial of Ferrer began at 8 A. M. on October 13 and lasted five hours. The court was composed of one lieutenant-colonel as president, and five captains as jury. In the summary of the charges the prosecution declared that fifteen witnesses had proved that Ferrer had been involved in previous revolutionary at-

tempts and had been seen at the head of armed men in the Barcelona uprising. Counsel for the defense endeavored to show the weakness of the evidence against him, pointing to the prosecution's revival of old charges. In general he tried to establish the fact that Ferrer was the victim of political hate. The verdict of guilty was rendered and approved by the Captain-General, Auditor and Supreme Court. Meanwhile the Cabinet on examining the petition in favor of Ferrer had refused it. Ferrer was shot on the same day as his trial, October 13. When the news reached Paris, rioting occurred and a mob attempted to seize the Spanish Embassy. Several policemen were wounded and one person was killed.

MINISTERIAL CRISIS. On October 18 Señor Moret, the Liberal leader, criticised the government for its lack of foresight in the Moroccan campaign and for its bad management of the war and declared it responsible for the Barcelona riots, unduly severe in their repression, and unjust in the matter of the press censorship. He concluded that the continuance of the Ministry in office was injurious to the country. Señor de la Cierva spoke in defense of the Department of the Interior. Incensed by the Opposition's interruptions, he made an angry remark, which brought on an uproar in the Chamber. The Opposition demanded an apology. La Cierva offered to resign, but neither the Premier nor his other colleagues were willing to accept his resignation. They approved his words and preferred to resign rather than to throw him over. The resignation took place on October 21 and they were succeeded by the Moret Ministry, which was regarded as a moderate, safe, and, except for the well-known abilities of the new Premier, rather commonplace government. One of the first acts of the new government was to announce that no more executions would be permitted without complete government confirmation. The Cortes was prorogued on October 27. One of its most important measures before the close of the year was a decree for the simplification of municipal laws which, since 1877, had been encumbered by many ordinances. The object of the decree was to give back to the municipalities the liberties and responsibility they had originally possessed. The municipal elections on December 12 were, on the whole, favorable to the government.

OTHER EVENTS. For operations of the campaign in Morocco, see MOROCCO, paragraphs on *History*. The objects of Spain in the Moroccan war were defined by the government as consisting, first, in satisfaction for the murders of July 9; secondly, in obtaining guarantees for the execution of treaties and for the protection of Spanish interests, and finally, in reimbursement of the expenses of the military operations. The campaign, after the early reverses, turned gradually in favor of Spain, and by the early part of September the Riffs had been swept from a considerable tract of country in the neighborhood of Melilla. The attacks by the Moors in October were repulsed and by the end of that month the success of Spain was assured. On May 2 municipal elections were held throughout the country under the compulsory voting law of 1907. The new system brought out an unprecedented number of voters, between 80 and 90 per cent. of the electorate. In general, the returns were favorable to the

Liberal Republicans, Democrats and Socialists. In May, a bill was passed for the protection of maritime industries, including subvention for Spanish shipping laws and a tonnage tax on foreign vessels in Spanish ports. The attempts on the part of certain elements in the Opposition to attack the present integrity of members of the government were unsuccessful and resulted only in the further consolidation of the Liberal majority. But the latter became unpopular as a result of its war policy and its measures of repression after the Barcelona riots. The strict laws of press censorship aroused the opposition of the newspapers, whose managers met in September and protested against it. A delegation was sent with a petition to the King for the relaxation of the censorship. The Minister of the Interior replied to the criticisms of the Opposition newspapers in a circular letter to the provincial governors and to the press justifying the government's measures. In August there were reports that the Carlists intended to rise against the government, but this proved to be without foundation. Don Jaime de Bourbon, the new Pretender, showing no disposition to take part in it. (See CARLOS DE BOURBON.) On February 12 the King received King Manuel of Portugal, and on March 31 met King Edward at San Sebastian. On June 22 a third child, a daughter, was born to the royal couple. At the beginning of April new works were begun at the port of Seville in the presence of the King and Queen. A canal was planned for the admission of vessels of 10,000 tons and 25 feet draught.

SPEED, JOHN GILMER. An American editor and writer, died by his own hand, February 2, 1909. He was born in Kentucky in 1853, and graduated from the University of Louisville in 1869. After some years spent in engineering and mining, he became, in 1879, managing editor of the *New York World*, holding this position until 1883. After some years abroad, engaged in magazine work, he was in 1888 editor of the *American Magazine*. Following this he did, for several years, miscellaneous editorial and magazine work. Mr. Speed was an authority on horses, and in 1904 he was appointed commissioner to purchase breeding stock for the Philippines. He was also employed to inspect horses and mules purchased for the Panama Canal. Among his writings are *Kcats' Letters and Poems* (Mr. Speed was a grand-nephew of the poet); *A Fall River Incident*, *The Horse in America* (1905).

SPELTER. See ZINC.

SPIRITUALISTS' ASSOCIATION, NATIONAL. An organization of various spiritualistic societies in the United States representing the developed force in the organizations of spiritualists. Active missionary work was carried on and many new temples were secured during the year for local societies. There are twenty-one States organized into State Associations and about 1000 local societies and churches. There are reported to be about 100,000 active members directly allied with the Association. The officers for 1910 were George P. Warne, President; Charles R. Schirm, Vice-President; George W. Kates, Secretary; Cassius L. Stevens, Treasurer. The next annual convention will be held in October, 1910, in San Francisco.

STANDARD OIL. The history of the Standard Oil Company for 1909 is made up almost entirely of an account of the various prosecutions which it was compelled to defend. There was, first, the case involving the great fine imposed by Judge Landis in 1907. The Landis decision was reversed by the Circuit Court of Appeals in July, 1908; the government then applied to this same court for a rehearing which was denied. A petition was next presented to the Supreme Court asking for a writ of certiorari to bring the entire case before that court for review. On January 4, 1909, this petition was denied, and the case reverted to the original court for retrial. In this trial, at which Judge A. S. Anderson, of Indianapolis, replaced Judge Landis, the rulings of the Circuit Court of Appeals revising the earlier decision governed the proceedings and proved important. These rulings were that conviction must be made only when it had been shown that the defendant knew that the six-cent rate it used was not the lawful, published rate; that the number of offenses was not the number of carloads, but the number of settlements between shipper and carrier; and that Judge Landis had abused judicial discretion by levying so heavy a fine. The case ended adversely to the government in March. The court directed the jury to bring in a verdict of not guilty, mainly on the ground that the government did not prove conclusively that the alleged 18-cent rate from Whiting to East St. Louis was the published, filed legal rate. While this opinion of the court was based upon the ruling of the Court of Appeals, it nevertheless aroused considerable adverse criticism. It was stated by critics that a great shipper does not get a discriminating rate without knowing it, that in the presence of the use of such a rate, knowledge of its discriminating character should be presumed, and that it is not sound sense to require the government to prove that the shipper knew the rate to be illegally favorable. The government claimed that its hands had been tied and the press almost unanimously declared that the rebate law needed amending.

On January 18 the case won by the State of Texas against the Waters-Pierce Oil Company, of Missouri, and the Standard Oil Company, of New Jersey, was sustained by the United States Supreme Court. In this case it was claimed by the State that these two companies had entered into a conspiracy leading to control by the latter, that they had prevented independent dealers from handling oil in the State, had maintained prices, and had used unfair competitive methods, and that they constituted a monopoly, handling 95 per cent. of all oil and oil products sold in the State. A fine of \$1,623,000 was imposed and the defendants forbidden to do business in the State. The fine with costs of about \$200,000 was paid in April. Late in October it was announced that the Texas Oil Producing and Refining Company, controlled by John W. Gates, had arranged to take over the Texas property of the Waters-Pierce Company. On October 26, the Texas Supreme Court handed down a decision ousting from the State the Security Oil Company and the Navarro Refining Company, two subsidiaries of the Standard, and fining them \$175,000. Receivers were appointed to take charge of the \$4,000,000 worth of property.

The suit begun in 1907 by the State of Mis-

souri against the Waters-Pierce Oil Company, the Republic Oil Company of New York, and the Standard Oil Company of New Jersey, was won by the State late in 1908. (See TEXAS.) The Supreme Court of Missouri found the defendant companies guilty of conspiring to fix prices, to control the retail trade, to destroy competition, and to deceive the public into believing them independent. The court had fined each company \$50,000, ousted the last two defendants and ordered the Waters-Pierce Company to reorganize so as to operate independently. In January, 1909, the Standard Oil Company of Indiana, proposed that a new Missouri corporation be formed to take over the property and business of the defendant companies; that the stock of this new company for four years be held by two trustees, one named by them and one by the State, and both approved by the Supreme Court; that these trustees act as the agents of the court and conduct the business so as to give "fair, just, lawful, and proper treatment to the public as well as to the property."

At the close of the year Oklahoma was vigorously prosecuting a case against the Standard and certain subsidiaries doing business in that State.

Far the most important case against the company was the dissolution suit begun in the United States Circuit Court at St. Louis in November, 1906, and concluded November 20, 1909. Besides the Standard Oil Company of New Jersey, the defendants named in this suit included seventy subsidiary companies, and J. D. Rockefeller, Wm. Rockefeller, H. M. Flagler, H. H. Rogers, J. D. Archbold, O. H. Payne, and C. M. Pratt. The testimony covered 10,000 pages, and other evidence 15,000 pages. The arguments in the case occupied the week of April 5-12; voluminous briefs were filed; and the decision was 20,000 words in length. The decision, which was rendered at St. Paul, Minn., was written by Justice Sanborn, and concurred in by Justices Van Deventer, Hook and Adams. The government's special attorney was Frank B. Kellogg, of St. Paul. The court, in the first place, upheld the Sherman Anti-Trust law as a rightful exercise of the power of Congress to control commerce between the States and with foreign nations. It then said, "Test of the legality of a combination under this act is its necessary effect upon competition in commerce among the States or with foreign nations. If its necessary effect is only incidentally or indirectly to restrict that competition, while the chief result is to foster the trade and increase the business of those who make and operate it, it does not violate that law. But if its necessary effect is to stifle or directly and substantially to restrict free competition in commerce . . . it is illegal within the meaning of that statute."

The next point in the decision lays down an important principle of judicial discretion. "The power to restrict competition in commerce . . . vested in a person or an association of persons by a combination is indicative of the character of the combination, because it is to the interest of the parties that such a power should be exercised, and the presumption is that it will be." The court cited among the rules for interpreting the law the principle laid down in the Northern Securities

and other cases, that it is to be presumed that the parties to a contract or combination intend the inevitable results of their acts, "and neither their actual intent nor the reasonableness of the restraint imposed may withdraw it from the denunciation of the statute." Another rule from that same case is that "the exchange of the shares of competitive corporations for shares of a single corporation, the necessary effect of which is a direct and substantial restriction of competition, constitutes a combination that is declared illegal by the Sherman law." The history of the Standard Oil Company is then reviewed. The decision thereafter ruled out the first two contentions of the defense that the defendant corporations had not been competitors since 1879; and that the stockholders of the principal company, being the joint owners of the subsidiary companies, had a right to convey their stock to the former and Congress had no power to restrict such acquisition. And overruled two other contentions, that the oil companies were private concerns, whereas the railroads combined by the Northern Securities Company were charged with public duties and were therefore peculiarly subject to Congressional regulation; and that, if there had been any restraint of trade since 1899 it had been neither direct nor substantial. It found the combination illegal not only as in restraint of trade, but also as a monopoly forbidden by the second section of the Sherman law.

Finally, the decision issued a very broad injunction against all the defendants, 33 of the 70 subsidiary companies being excepted. The discontinuance of the combination and its operations was ordered; the officers or agents of the Standard Oil Company of New Jersey were enjoined from voting the stock in any of the subsidiary companies or otherwise exercising control over them; the subsidiaries were enjoined from paying any dividends to the company; the individual defendants were forbidden to continue the combination; the subsidiaries were forbidden to enter a like combination, the court specifying various ways in which this might be done and enjoining each.

While it was generally conceded that the decision gave ground for criminal proceedings against the individuals named in the indictment, it was also clear that if such suits were to be brought they would not be begun until the appeal in this case was decided. On December 17 such an appeal, alleging 65 errors, was filed, thus taking the case to the United States Supreme Court. Meanwhile the press had discussed the various possibilities of reorganization under a foreign company beyond the immediate control of Congress and American courts. At the same time it was made apparent that should the Supreme Court sustain the lower court great numbers of suits would be brought against the Standard for damages under section seven of the Sherman law.

STARIN, JOHN HENRY. An American capitalist and ship owner, died March 22, 1909. He was born in Sammonsville, N. Y., in 1825. After an academic education he became a drug clerk. From 1848 to 1852 he was postmaster at Fultonville, N. Y. In 1856 he removed to New York City and began the sale of drugs and medicines. He became acquainted with Commodore Vanderbilt, and was by him appointed a freight agent on his lines. Starin

soon conceived the idea of organizing a general freight agency to collect and distribute freight about New York harbor. This plan was highly successful. During the Civil War he obtained valuable contracts for transportation from the government. Following the war he built up an extensive business around New York City. He established the resort of Glen Island, for pleasure seekers. In 1876 Mr. Starin was elected to Congress, where he served two terms. He was a member of the Rapid Transit Commission of New York City throughout its existence.

STARS. See **ASTRONOMY.**

STATE BANKS. A report of the National Monetary Commission showing the condition of 11,292 State banks was issued on April 28, 1909. The total resources aggregated \$3,293,346,000, or 15.6 per cent. of the total resources of all banks in the United States, and equal to slightly more than one-third the total resources of the 6977 national banks on that date.

The State bank resources included the following items: Loans and discounts, \$1,993,428,000; bonds and other securities, \$288,591,000; mortgages owned, \$77,279,000; due from national banks, \$326,431,000; due from banks other than national, \$160,078,000; cash on hand, \$219,824,000. The loans and discounts equalled 20 per cent. of those of all banks in the country; and the cash, 15 per cent. of the total held by all banks. The liabilities included: capital, \$410,718,000; surplus, \$150,795,000; undivided profits, \$90,362,000; individual deposits subject to check, \$1,395,773,000; savings deposits, \$449,276,000; demand certificates of deposit, \$117,998,000; other deposits, certified and similar checks, \$476,260,000. State banks held 17 per cent. of individual deposits in all banks in the United States, as compared with 23 per cent. in 1908. The aggregate resources and liabilities of State banks were one-fifth less in 1909 than in 1908; capital and deposits decreased to an equal extent, and loans and discounts fell by about 15 per cent.

Only a few State banks are found in the New England or Eastern States, while 3312 are found in the Southern States, 3717 in the middle Western, 3026 in the Western, and 831 in the Pacific States. Missouri had 942 State banks, Kansas 774, Minnesota 637, Nebraska 629, Oklahoma 617, Wisconsin 462, Georgia 437, and Kentucky 412. While comparison shows the number of State banks to have been slightly greater in 1909 than in 1908, their aggregate banking power was considerably less, and their relative importance decidedly less than in 1908.

STATE CHARITY CONFERENCE. See **CHARITY ORGANIZATION.**

STEAM ENGINES. The advent of the steam turbine (q. v.) did not eliminate the reciprocating steam engine from mechanical engineering, for it was realized that it had its place and function, especially in certain applications to which the turbine was not suited. Nevertheless, few important advances in steam engine construction were to be recorded for 1909 and the years immediately preceding, for standards of design and type had been reached where improvement apparently was not possible. But by 1909 a consideration of the operation of steam engines and low pressure turbines led to the conclusion that by a combination of the two the efficiency of the plant could be greatly

increased. Thus with a non-condensing engine a steam turbine may be used to run with the exhaust steam and operate more effectively than the high pressure engine working on the live steam, while the use of turbine between the low pressure cylinder of a compound or triple-expansion engine and its condenser results in a clear gain which is really remarkable. A striking instance of this was reported in 1909 from the Fifty-ninth Street power station of the New York Interborough Railway, where is generated the power for the subway.

The engines at this station are of the Allis-Chalmers cross-compound type direct connected to the generators, and they have a maximum economical rated power of 6000 kilowatts. When a steam turbine was interposed between the low pressure cylinder and the condenser, not only could the engines be run at overload with an economical water rate, but at increased efficiency, and the power output was practically doubled, about 16,000 kilowatts being developed. Just as the high pressure engine made possible great gains in power, so it was demonstrated that the addition of the turbine takes care of the expansion of the steam at the lower pressures which would be impossible even with a low pressure of unduly large size. This combination was being used with success in the reversing rolling engines of steel works, in winding engines and various power plants, not to mention the largest steamships under construction in 1909. See **STEAM TURBINES** and **SHIPBUILDING.**

STEAM TURBINES. Both on land and on sea the steam turbine had developed by 1909 to a point where its application had almost become standard for many classes of work. Thus in large alternating current plants, such as those of the Waterside station of the New York Edison Co., and the Interborough Rapid Transit where a large turbo-generator had been in operation for several years, good results were secured, while in smaller installations with turbines of less than 300 horse power used for various purposes many advantages were found. Perhaps the most significant work was carried on with low pressure turbines in connection with reciprocating engines, using the latter with the higher pressures and the turbines with the exhaust steam. See **STEAM ENGINE.**

The steam turbine in order to secure its greatest efficiency must be operated at considerable speed. Thus an electric generator can be designed where the high speed of rotation of the turbine shaft can be utilized, but in the case of the propeller of a vessel the high speed of rotation becomes an embarrassment, for the screw unlike the turbine does not operate at its highest efficiency when the rate of rotation is rapid. Three solutions of the difficulty were suggested. One was to install turbo-generators and then transmit the current to slow speed electric motors on the propeller shaft, a second was to employ a hydraulic reduction drive with a hydraulic turbine direct connected to the steam turbine and the other direct connected with the propeller shaft, and finally there was the mechanical reduction gear whereby gearing was employed to transmit the power and reduce the velocity of rotation. For the first the Fire River Shipbuilding Co., of Quincy, Mass., stood ready to construct a 26,000 ton battleship, while the hydraulic reduction was

advocated by European engineers, and the mechanical reduction was announced in 1909 after a number of experiments by American engineers made at the Westinghouse Works. A simple reduction of speed by gearing where limited power or low speeds is involved presents no difficulties, but given the horse-power of such a steam turbine installation as on the *Mauretania* (18,000 horse-power per shaft), the transmission and control becomes a serious problem. A scheme devised by Rear-Admiral George W. Melville, former chief engineer of the U. S. Navy, and John H. MacAlpine, was accordingly developed and tested in experiments on a large scale with considerable success. The method was the use of helical gearing or toothed wheels where the teeth which mesh into each other were cut in the form of a steep spiral so that the wheels roll into contact without any jar or shock. The smaller and more rapidly rotating pinion wheels are in the turbine shaft and they communicate their motion to a larger wheel in the propeller shaft. In order to obviate the end thrust due to the obliquity of the teeth there are two sets of gears on each shaft with the spirals running in opposite directions. Now despite the accuracy with which gears can be cut with modern machine tools it was impossible to secure uniform contact through the entire length of the gear, so that a special form of support for the frame carrying the bearing had to be devised in order to secure equalization of the tooth contact pressures.

The gear was tested on a large scale with a hydraulic brake at different speeds with horse power varying from 3712 to 5927. It was found that at approximately 5000 horse power, with the turbine running at 1500 revolutions per minute and the driven shaft at 300 revolutions per minute, the efficiency of the gear was more than 98.5 per cent. An efficiency of 98 per cent. at a load of 3000 horse power and 1000 revolutions of the turbine was shown, and 95 per cent. at a load of only 824 horse power and 750 revolutions of the turbine.

The economy of such an arrangement when applied to the propellers of a steamship was most evident, and it was calculated that, with the lower speed of revolutions secured with the reduction gear, propellers could be installed with an efficiency of not less than 65 per cent., which in the case of a vessel like the *Mauretania* would mean a saving of about 15 per cent. or a gain of one-seventh in the coal consumption. Furthermore there would be other economy in the construction and operation while there would be available with the same bunker space coal for a much greater radius of operations.

STEEL. See IRON AND STEEL and CHEMISTRY, INDUSTRIAL.

STELLAR EVOLUTION. See ASTRONOMY.

STEWART, WILLIAM MORRIS. United States Senator (Republican) from Nevada, 1863-1875, and 1887-1905, died April 23, 1909. He was born in Lyons, N. Y. in 1825, and studied for a time at Yale College. He also studied law and having removed to Nevada was, in 1852, chosen District Attorney of Nevada City. In 1854 he established a law partnership with Henry S. Foote in San Francisco. He was financially interested in mining ventures, and when Western Utah was organized into Utah Terri-

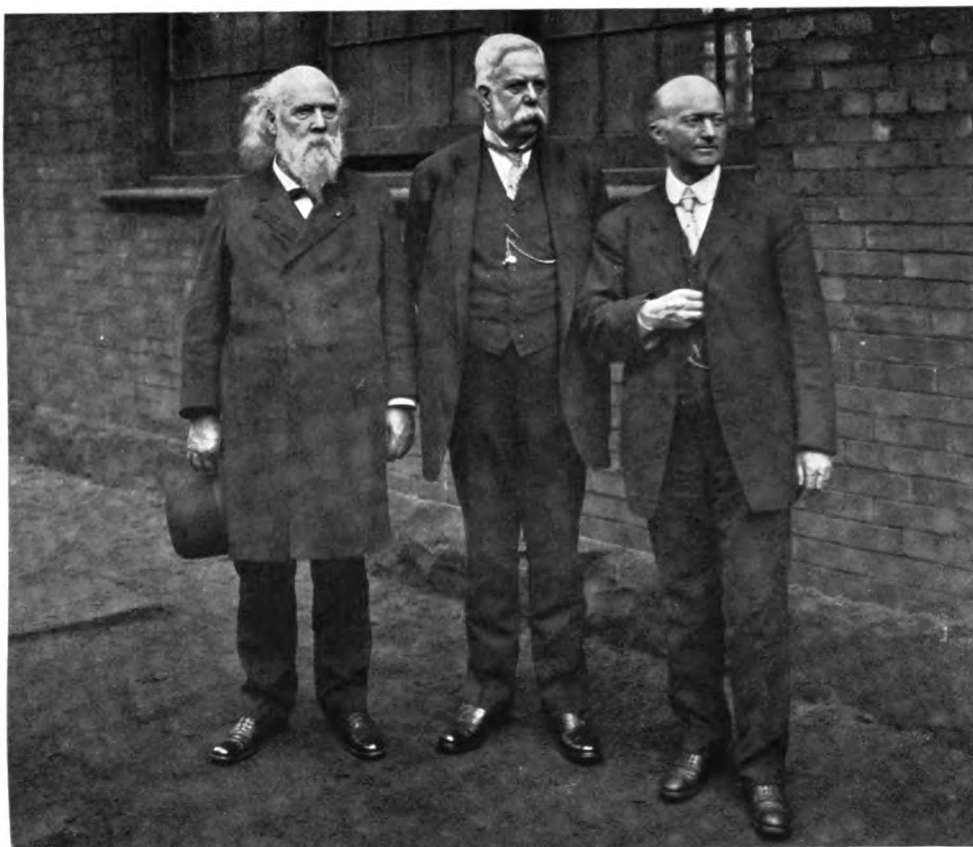
tory he became prominent in its government. Nevada was made a State in 1864, and Stewart was elected Senator. He was a friend of President Lincoln and was said to have received the last words written by Lincoln. Senator Stewart was the author of the Fifteenth Amendment to the Constitution. He declined an appointment to the Supreme Court from President Grant, and in 1875 returned to care for his business interests. He was reelected to the Senate in 1887, and became prominent in the debates on free silver. He coined the phrase "The crime of '73." In 1892 he founded a free silver party in Nevada, but in 1900 he returned to the Republican party. He published in 1908 an interesting volume of reminiscences.

STIRLING, JAMES HUTCHINSON. A Scotch metaphysician, died March 19, 1909. He was born in Glasgow in 1826 and was educated at Glasgow University. He practiced medicine until 1851 and lived on the continent of Europe from 1851-57. Returning to Scotland he devoted his time to philosophical writing. Among his works are *The Secret of Hegel* (1865); *Sir William Hamilton* (1865); *Lectures on the Philosophy of Law*, etc. (1873); *Philosophy in the Poets* (1885); *Philosophy and Theology*; *Gifford Lectures* (1896); *What is Thought? or The Problem of Philosophy* (1903).

STÖCKER, ADOLF. A German theologian and politician, founder of the Christian Socialist party, died on February 8, 1909. He was born in 1835. He studied theology and philosophy at Halle and Berlin, entered the ministry and in 1874 became cathedral preacher and court pastor in Berlin. In 1879 he was elected to the Prussian Chamber of Deputies, and from 1881 to 1893 was a member of the Reichstag. He took a strong stand against the Jews, and in 1890 as a result of his Socialistic activities, he was removed by the Emperor from his place as court pastor. In 1896 he left the Conservative party, and, from a considerable body of followers, organized the Christian Socialists. He became editor of the *Deutsche Evangelische Kirchenzeitung* in 1892. He wrote *Christlich Sozial* (1884 and 1890); *Wach' auf evangelisches Volk!* (1893); and *Dreizehn Jahre Hofprediger und Politiker* (1895).

STOCK EXCHANGE. See EXCHANGES and FINANCIAL REVIEW.

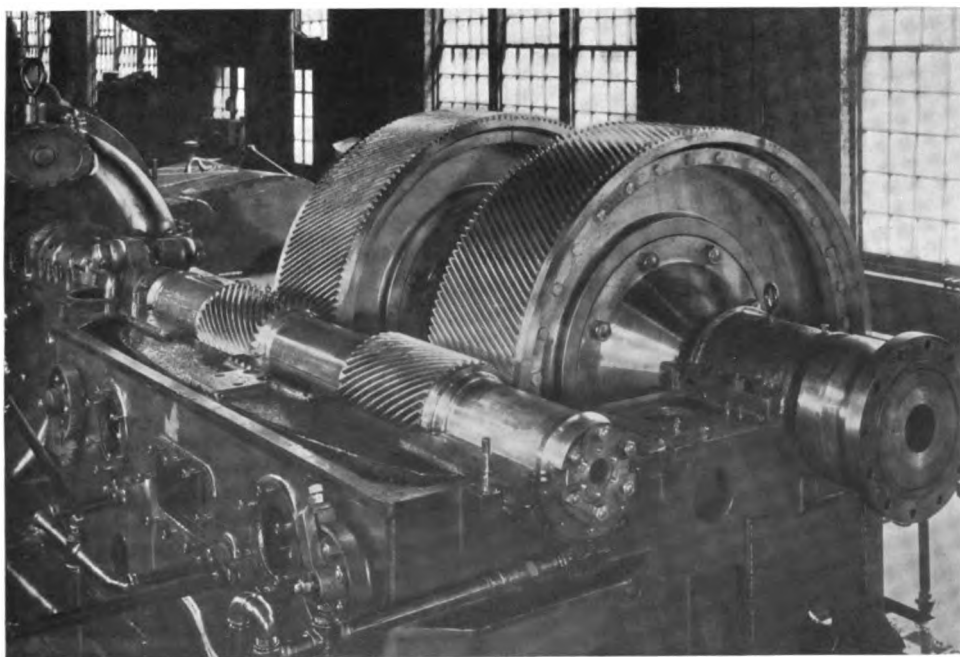
STOCK RAISING. Some of the principal features of the live-stock trade in the United States during 1909 were the shortage of fed cattle owing to the high price of corn; the heavy movement to market of range cattle; the lightest run of hogs since 1903; heavy receipts of sheep and lambs; shrinkage of export trade owing to high prices in Chicago and the competition in British markets of Argentine beef. The official figures of the Union Stock Yard and Transit Co. show that the receipts of cattle at Chicago during the year were 2,929,805, a decrease of 109,401 from receipts of 1908. The number of hogs received was 6,619,018, besides 418,007 head received direct from the packers. The decrease in hogs from the figures of 1908 was 1,512,447; the number of calves received was 409,714, a decrease of 11,957; horses 91,411, a decrease of 727; sheep 4,441,424, an increase of 89,535 over 1908. The total value of this stock was appraised at \$339,614,200, an increase of \$24,047,682. The shipments from



REAR ADMIRAL GEORGE W. MELVILLE

GEORGE WESTINGHOUSE

JOHN H. MACALPINE



**GEAR AND PINION WITH COVER OF UPPER HALF OF FLOATING FRAME REMOVED
MELVILLE-MACALPINE REDUCTION GEAR FOR THE STEAM TURBINE**

Chicago showed the following decrease from the figures of 1908; cattle 87,657, calves 1766, hogs 205,765, sheep 273,751, horses 45.

It was an expensive year for the cattle feeder as low prices prevailed in the early part of the year. Range cattle had been transferred to the feed lot, which increased the demand for corn and helped to raise its price. As corn rose in price there was less profit in feeding and cattle were short-fed and hurried off to market. When the winter crop had been cleaned up prices improved and range cattle reached high-water mark in their history. During the year high prices were reached for all kinds of livestock, which is an indication that the supply is diminishing. For several years animals which should have been kept for breeding have been slaughtered and furnished a large export trade and there is danger of a much reduced beef supply in the near future, although the cattle supply at the five principal markets was larger than in 1908. The gains were made at Kansas City and Omaha. At Chicago there was an actual loss. The movement due to liquidation of the western ranges was about over at the end of the year and portends a loss in receipts at all of the markets for 1910.

Exports of cattle for slaughter which rose to 593,000 in 1904 declined to 208,000 in 1909, likewise the exports of dressed beef fell from 733,000,000 pounds in 1906 to 419,000,000 in 1909. Since 1900 the number of cattle has not increased, while the population has increased 20 per cent. For a discussion of meat prices see FOODS AND NUTRITION.

The supply of hogs was 3,000,000 less than in 1908; half of the loss was at Chicago. There were at the close of the year 2,000,000 less hogs in the country than the year previous, but the average value was about 50 cents per head more. The exports of pork and pork products decreased from 1,465,000,000 pounds in 1906 to 1,053,000,000 pounds in 1908. The fall in the price of hogs in 1908 sent to the shambles thousands of breeding animals. The liquidation was felt in the autumn of 1909 by the continual upward movement of prices, though the hog and lamb market was good throughout the year. The sheep supply was 300,000 larger than in 1908. Horse values were higher than in 1908 and the quality was poorer.

In 1909 the number of sheep fit for shearing was 42,293,205, an increase of 1,981,657 over 1908, made principally in the States of Montana, Wyoming, Idaho, and New Mexico. During the year there was a recovery in prices and volume of business from the panic in the fall of 1907. In January the wool sales in London opened in a promising manner. Early in the season there was a sharp demand for western wool. A conspicuous feature of the market was the increase in contracting for wool on the sheep's back. The Payne tariff bill which became a law on August 6, maintained the Dingley rates of 11 and 12 cents per pound on first and second class wool. On other wools there was a reclassification which favored the worsted rather than the carded woolen industry. In September many wool buyers sailed directly for Australia instead of London as formerly. At the close of the year there was an unusually small supply of wool in the Boston storage warehouses.

The total wool production in the United States both washed and unwashed was 328,110,749 pounds, a gain of 6,963,137 pounds over

1908. Of this amount 41,000,000 pounds was pulled wool. The total number of sheep killed in the four principal western slaughter centres was 5,824,000, or 26,200 more than for the five preceding years. A wool storage warehouse with a capacity of 25,000,000 pounds was erected at Chicago during the year, and represents a stage in the transfer of a portion of the wool trade from the east to the west. There has also been a union of the Montana and Chicago interests by the foundation of the National Wool Warehouse and Storage Co.

In Australia, the principal wool producing country of the world, the prices steadily improved during the year and wool auctions became more important. More merino wool is now sold in Australia than in the London market. During the year upwards of 18,000,000 sheep were slaughtered, a slight increase over 1908, and 756,590,163 pounds of wool were exported, of which amount 59,969,862 pounds were sent to the United States. Argentina sent about the same amount. The wool production in Uruguay amounted to 111,552,760 pounds in 1909, and 5,868,232, pounds were exported to the United States.

At the Arizona Station experiments were made in crossing Tunis sheep with natives, which have resulted in a heavier fleece than the native. Though rather coarse and of long staple it is a great improvement on the Tunis sire in quantity and quality. In Australia attempts were made to produce, by crossing, a dual purpose sheep that will furnish a good fleece and yet provide mutton for export to England. So far the best results have been obtained with a Shropshire-English Leicester-Merino.

The supply of poultry and eggs was greater than in previous years, but did not keep up with the usual increase in demand. The price of dressed poultry and eggs has not been so high for many years. The average price of eggs in the eastern markets for the month of December was about 5 cents per dozen higher than in 1908. The Department of Agriculture continued the coöperative work at the Maine Station in breeding for increased egg production and associated problems. A biometrical study of egg production based on trap nest records for 10 years at that station showed that egg production did not increase by selective breeding and that winter egg production has an adverse effect on the hatching quality of the eggs produced by the same birds on the subsequent hatchings. The Bureau of Animal Industry made a study of the conditions surrounding the production and marketing of eggs and published a report showing how the heavy loss incident to marketing may be overcome. A cold-storage evaporimeter, for measuring and regulating moisture in storage rooms, was devised by a member of the Bureau staff and was patented by the Department so that it may be used by the public free of royalty.

CANADA. The live-stock industry in Canada increased in amount and value per head, especially in dairy cattle, horses, sheep, and hogs. There is a good outlook for the cattle industry in Mexico, as good range land can be obtained for from \$3 to \$7 per acre. It takes a large amount of capital but the returns are quicker than from plantations. Along the coast region there is little loss from drought. For several years all kinds of farm animals have increased in the

island of Cuba, but the number of importations has decreased since 1904, which shows that the increase has come by breeding from native and introduced stock. Four breeds of cattle from India have been introduced into the island of Jamaica and all appear to be well adapted to the conditions. The Mysore breed is an excellent draft animal and is used in place of mules to transport bananas to shipping places. The Gir is a good dairy breed and the Hissar has proved useful as a general purpose animal. These favorable results, together with other recent experiences in sending cattle from India to Texas and to the Philippine Islands, indicate that the humped breeds of India are well adapted to all tropical and sub-tropical conditions and may lead to the development of the cattle industry in places where other breeds will not thrive owing to ticks and other cattle pests. In Argentina the number of all farm animals except sheep increased. The cattle industry is developing rapidly and the export meat trade to Great Britain has assumed considerable importance.

GREAT BRITAIN. The number of live-stock in Great Britain is as follows: Horses 1,552,993, cattle 7,020,982, sheep 27,618,419, hogs 2,380,887. These figures represent increases in all cases except in hogs. There are 2,000,000 more sheep in Great Britain than two years ago. The loss in hogs was due to the low price of pork and high price of feeds, but the price of pork was gradually rising. The increase in horses was wholly in classes used for agricultural purposes. In Ireland there was a decrease of 5336 horses, 94,046 cattle and 69,125 pigs from the number in 1908. Slight gains were made in sheep, asses, goats, and poultry. Live-stock production did not keep pace with consumption in France, as imports increased. Efforts were being made to stimulate production in the French colonies. A shipment of cattle was made from the Island of Madagascar to Marseilles. This colony, which contains nearly 4,000,000 head of humped cattle, can be made to supply large quantities for French consumption when the trade is adequately managed. Germany steadily advanced in all lines of animal industry.

Since 1860 the percentage of increase in horses has been 29 per cent., cattle, hogs 31 per cent., goats 51 per cent. This gain has been made by increasing the productiveness of the acreage instead of importing food-stuffs.

AUSTRALIA. A new era has been opened for the cattlemen of Australia since the recent successful shipment of chilled beef to England. Previous attempts had ended in failure. In this case the surface of the carcass was sterilized immediately after slaughter. The beef was 62 days in transit and sold at 8½ and 9 cents per pound for hindquarter, a little more than was paid for meat from Argentina. The government of Japan has recently taken steps to encourage the importation and improvement of live-stock. One reason for so doing is the belief among the officials that the scourge of "beri-beri" is due to rice diet. Meat has been made a part of the regular ration of Japanese soldiers. In 1909 there were in the country about 1,500,000 horses, 4000 sheep, 75,000 goats, 1,200,000 cattle of which 50,000 were milch cows, 17,000,000 fowls, 300,000 ducks, 9000 turkeys, and 7000 geese.

Many investigations were carried on in the

study of feeding-stuffs and animal nutrition. Hart, McCollum and their associates at the Wisconsin Experiment Station have shown that pigs possessed synthetic power to convert inorganic forms of phosphorus into organic forms when the needs of the animal demanded it. When starving for phosphorus this element was withdrawn from the skeleton. At the same station it was found that in cows pentosans of the corn plant disappeared from the digestive tract in greater amount than did the pentosans from wheat or oats. Many analyses of oats made by the United States Department of Agriculture show that the characteristic tendency of oats grown in the United States, when compared with oats grown in Europe, is toward a higher protein content. Several European investigations show that amids and other forms of non-protein nitrogen compounds may replace proteins to some extent in the nutrition of sheep and cattle.

The American Society of Animal Nutrition, which was organized in 1908, held its first regular meeting in Chicago, November 27. The meeting was well attended and the interest shown by the members present indicates that the society will prove to be a great stimulant for promoting investigations.

Among the principal books published during the year are: T. Shaw, *The Management and Feeding of Cattle*, N. Y.; C. W. Burkett, *Farm Stock*, N. Y.; E. Pott, Vol. III, of *Handbuch der tierischen Ernährung und der landwirtschaftlichen Füttermittel*, Berlin; T. W. Sturgis, *The Poultry Manual*, London; W. Bateson, *Mendel's Principles of Heredity*.

STODDARD, CHARLES WARREN. An American author, poet and educator, died April 24, 1909. He was born in Rochester, N. Y., in 1843, and in his early years removed to California. He attended the common schools and the University of California, but ill health prevented his graduation from the latter. He spent several years as an actor, and was afterwards a traveling correspondent. During this period he was for five years in the South Seas. From 1885 to 1887 he was professor of English literature at the University of Notre Dame, and from 1887 to his death held the same position in the Catholic University of America. Stoddard wrote many books, but the most important are those containing stories of the South Seas. Stevenson considered many of these stories masterpieces, and William Dean Howells called them the most remarkable stories of the South Seas ever written. The best known volume is *South Sea Idyls* (1873). Among Stoddard's other works are: *A Troubled Heart* (1885); *Lazy Letters from Low Latitudes* (1894); *In the Footprints of the Padres* (1902); *The Island of Tranquil Delights* (1904); *The Dream Lady* (1907).

STOKES, WHITLEY. An Irish scholar and scientist, died April 13, 1909. He was born in Dublin in 1830, was educated at Trinity College, and became a barrister in 1855. He spent a number of years in India, where he occupied various legal positions under the government, and drafted the present *Code of Civil Procedure*. He is best known, however, for his researches in and writings on Celtic languages, customs and monuments. Stokes is said to have done more than any other scholar to make accessible the literary and historical monuments of the

ancient Irish language. His writings on these subjects were voluminous. He was joint editor of the series of *Irische Texte*, the *Thesaurus Palachivernicus*, and the *Archiv für keltische Lexicographie*, and he wrote, among other works, *Irish Glosses* (1860); *Three Irish Glossaries* (1862); *The Calendar of Oengus* (1880); *Lives of Saints from the Book of Sismore* (1889); *The Eulogy of St. Columba* (1899).

STORAGE BATTERIES. The application of storage batteries to alternating current systems in connection with the variable ratio converter was the most noteworthy event in this field in 1908. This practice has been greatly extended in 1909 with much success. The most important of the new developments is known as the permanizing process. In the past the negative plates of the battery have been subject to a gradual loss of storage capacity with use, due to the clogging of the pores of the active material. Extra heavy construction was required to keep the rate of deterioration of the plates within reasonable limits. The permanizing process consists in soaking the plates in a solution of a carbonizable solid, such as sugar, until the pores of the active material are well saturated, whereupon the plates are removed and the sugar carbonized by heating. The pores are thus made proof against clogging and the negatives maintain a constant capacity over an indefinite life. The process has also been applied with success to old plates, resulting in a restoration of the original capacity. Much progress has also been made in grid plate construction. Better provision has been made for the mechanical strains caused by the expansion and contraction of the active material of the plates. The combined result of these improvements is found in the reduction in the weight and cost for a given output and a considerable increase in life. As the use of batteries in the past has been limited by their high cost, great weight and rapid rate of deterioration, the above improvements have greatly broadened the field of battery application.

Extensive use has been made of the storage battery for vehicle propulsion, more than 20,000 such equipments now being in use. Improvements in battery construction have made such vehicles more reliable and more easily maintained. The very short life of the early battery equipments has been overcome in the recent product. The storage battery bids fair to find more favor than the gasoline engine for heavy commercial truck propulsion. Records show that such trucks may be operated at about 85 per cent. of the expense for horse-drawn vehicles of equal capacity.

The Edison iron-nickel storage cell did not become a commercial factor of importance during 1909.

STRAITS SETTLEMENTS. A British Crown colony in the Malay Peninsula, deriving its name from the Straits of Malacca. The Colony is composed as follows:

	Area sq. miles	Pop. 1901	Capital Gov't seat
Singapore	206	228,555	Singapore
Penang	107	128,830	Georgetown
Malacca	659	95,487	Malacca
Province Wellesley...	288	115,264	Georgetown
The Dindings	260	4,113	Lumut
Labuan	31	8,286	Victoria
Christmas Island....	56	12,000	
The Cocos Islands...	9	700	

The total population, including small adjacent islands, in 1901 was 572,249 (215,058 Malays, 281,933 Chinese, 57,150 natives of India); estimated 1908, 620,127. Capital, Singapore, with (1901) 228,500 inhabitants. Education (not generally compulsory) is provided by 213 government and grant-in-aid schools, with an average total attendance of 18,883. The principal products and exports are gambier, pepper, gutta-percha, rubber, horns, hides, sugar, rice, sago, tapioca, spices, dyestuffs, copra, rattans, coffee, tobacco, gums, tin, etc. The imports are rice, cotton piece goods, opium, petroleum, and coal. The ports are free, duties being levied only on opium, spirits, wines, and beer consumed in the Colony. Singapore is a port of call for vessels trading between Europe and India and the Far East, Northern Australia, and the Dutch East Indies, and is strongly defended.

The total trade for three years (including treasure) is given in Straits Settlements dollars (1 dollar=56.7758½ cents) as follows:

	1906	1907	1908
Imports.....	339,308,291	350,570,202	316,395,939
Exports.....	311,005,809	305,301,907	273,818,124

The aggregate trade of the separate Settlements is given for three years in Straits Settlements dollars (including inter-settlement trade) as follows:

	1906	1907	1908
Singapore.....	481,707,219	480,727,041	422,071,477
Penang.....	185,255,337	193,490,300	185,882,347
Malacca.....	10,018,119	9,539,992	8,853,068

The export of tin from Singapore in 1908 was valued at 33,477,542 dollars; from Penang, at 38,255,694. The number of merchant vessels entered and cleared at Singapore in 1908, exclusive of native craft, was 10,348, with a tonnage of 13,933,205; total for the Colony 18,495, tonnage 21,750,245. Total native craft entered at all ports, 17,747 of 723,536 tons. A railway connects Singapore with Kranji, whence ferries are run to Johore. The Perak State Railway runs from Parit Buntar in Kranj to Kuala Prai in Province Wellesley, whence ferries connect with Penang; and a line extends from Malacca to Tampin in Negri Sembilan. These lines connect with the Federated Malay States Railway system. The revenue and expenditure of the Colony in 1908 are given at 8,969,015 and 9,837,624 dollars respectively, against 10,023,016 and 9,499,693 in 1907. The public debt stood, December 1, 1908, at 3,000,000 dollars. The Governor (1909, Sir John Anderson) is assisted by executive and legislative councils. Resident Councillor of Penang (1909), R. N. Bland; of Malacca, W. Evans.

THE OPIUM QUESTION. The report of a commission appointed to inquire into the use of opium in the Straits Settlements and Federated Malay States, published early in January, unanimously recommended the abolition of opium farms and the establishment of the Java system of government monopoly. The report declared against sudden prohibition as bad for the Colonies, and recommended the strict control but not the suppression of smoking dens. The Straits government was embarrassed by the

fact that one-half of the revenues came from opium rents. The opium farmers protested against anti-opium measures as injurious to trade and alleged a great increase in the morphine and cocaine habits. An opium farm property valued at \$460,000 was placed by the government in the hands of a receiver, but a compromise was subsequently reached and the receiver withdrawn. A later report of the opium commission (March 5) declared that moderate opium-smoking was relatively harmless and that evils were not such as to justify prohibition but only the strictest possible regulation. The Chinese Mutual Life Insurance Company had accepted as first class risks persons consuming as much as eight "chees" a day, which was greatly in excess of the average consumption in the Straits Settlements.

STREET CLEANING. An apparently increasing tendency to use street washing machines instead of relying upon hand or machine sweeping was noticeable during 1909. The New York Board of Estimate and Apportionment granted the Street Cleaning Department of that city \$100,000 for the trial of various kinds of street-washing machines in practical every-day use. About \$60,000 were expended. Soper's *Modern Methods of Street Cleaning*, published in 1909, is devoted chiefly to observations made by the author in London, Manchester, Paris, Berlin, Hamburg, Cologne, and Amsterdam, but it contains a chapter on street cleaning in New York City, besides general observations on street cleaning, gives data for use in awarding a five-year contract for cleaning streets in the boroughs of Manhattan, the Bronx, and Brooklyn, but definite action based on the tests was not taken in 1909. A total of fifty machines were tried. These were of six makes, but included only three broad types: (1) machines in which pressure for wash water discharged from nozzles is supplied by air compressed in a water tank on filling the latter from hydrants attached to the city water mains; (2) pressure obtained by means of a pump and gasoline engine mounted on the machine; (3) a water-sprinkling cart combined with a sweeper or squeegee consisting of a roller fitted with rubber strips. Each type of machine does its work by being drawn along the street to be cleaned. The results obtained have not been published in a form that permits of useful comparison. In general, the quantity of water required ranged from 100 to 1000 gallons per 1000 square yards of pavement cleaned, varying with the character and dirtiness of the pavement. The 13 squeegee machines seemed to have used considerably less water per unit area cleaned than did the thirty-five air-pressure machines, but their work was apparently less thorough. Further details of these tests may be found in the *Engineering Record* of January 8, 1910.

STOVAINE. See ANÆSTHESIA, CHEMISTRY.

STRIKES AND LOCKOUTS. The year 1909 was in marked contrast to the preceding year in the number and great size of trade disputes in the United States. The year was a time of readjustment of industrial relations between employers and employees preparatory to a new era of trade development. The resulting disruptions of business argue strongly for the necessity of a more extended use of methods of arbitration and conciliation in this country.

A number of the year's strikes were of a landmark in the organization of America's women workers; that of the Ludlow, Mass., weavers throws into prominence some features of a model factory community; that of the Georgia Central Railway firemen involved the Southern race problem; those in the pressed-steel and tin mills precede a long and tremendous contest between the United States Steel Corporation and the American Federation of Labor. In foreign countries conditions were various. France was troubled by miners' combats, while Germany and England were comparatively free from industrial war.

The strike of the shirt-waist makers in New York City on November 22 developed into the largest women's strike ever undertaken in this country. Within a few days about 40,000 young women, mostly Jewish and Italian from the East Side, were out. The strike was begun by the Ladies' Waist Makers' Union, a small body of not more than 1000 members. But so general were the bad conditions in the trade that the thousands of non-union workers struck voluntarily. Practically all of these at once joined the Union. The immediate cause of the strike was the discharge of girls for joining the Union, but the strikers demanded, besides the recognition of the Union, an increase in pay for both piece and time workers; uniformity in pay; a fifty-two hour week; pay for all legal holidays; not more than two hours overtime work on any one day; and notice one day in advance when there is no work to be done. The conditions in this industry have been peculiar. There are several hundred employers, mostly unorganized; conditions of work vary from fairly good to intolerably bad; bargains with workers, even in the same shop, are individual and therefore lacking in uniformity; the supply of available workers, even at starvation wages, has been plentiful. Moreover a system of sub-contracting or inside sweating prevailed in many shops; that is, the shirt-waist contractor sub-let portions of his orders to women who employed two or more girls to do the work. A number of employers soon made terms with the strikers, and by December 1 it was reported that 14,000 of the strikers had won their demands. The strikers won great sympathy in the city, the woman suffrage leaders and others among the well-to-do coming to their assistance personally. The strike was attended by much confusion, but there was little riotous action. The strikers' pickets, it was charged, were roughly treated both by strike-breakers and by police, and appeal was made to Mayor McClellan in their behalf. By December 15, 231 manufacturers had agreed with the Union and all but 7000 of the strikers were at work. The remaining employers, most of them members of the Associated Waist and Dress Manufacturers, held out stubbornly against the recognition of the Union, which had become the chief issue in the contest. They also objected to the demand that Union representatives should have free admission to the shops at all times and should have chief power to determine the rates of pay for new kinds of work. Though both parties were suffering greatly and efforts at settlement were continuous the strike still continued at the end of the year.

At Philadelphia a strike sympathetic with

and imitative of the above began on December 20, about 7000 shirt-waist makers being out. They demanded better pay, more sanitary conditions, shorter hours, and union recognition.

The strike of the Polish workers in the mills of the Ludlow Manufacturing Associates, beginning early in September and continuing until December 16, was unique in several features. The mills of the Associates are engaged in the manufacture of all kinds of twines, rope, burlap, cotton bagging, and jute and hemp yarns. Ludlow is a model village; the employers own 500 model cottages in and about the city; these are rented at very moderate rates to employees; the employers have also provided schools, churches, libraries, places of amusement and other avenues of welfare work. About one-half of the 3500 employees are Poles. The trouble began with the bobbin-boys in the bagging department. Sometime after October, 1907, the wages of these boys had been reduced from \$5.50 to \$5; the pay of the weavers was at the same time reduced from 29 cents per 100 yards to 24 cents. All expected an advance with the return of prosperity. On August 25, about 50 of the boys without warning did not come to work. This forced the weavers to remain idle. The managers offered the weavers the boys' pay extra if they would attend their own creels. This the weavers could not do without loss; they therefore refused and left the mills. A few days later the managers announced a reduction in weavers' pay from 24 cents to 20 cents. The strikers organized a union and sent representatives to the company with the proposal to return to work if the weavers were given 24 cents and the creel-boys \$5.50. The company not only refused but announced that all workers who had not returned to their places by November 8 would be evicted from company houses. The goods of such were later stored by the company free of charge. Meanwhile Lieutenant-Governor Frothingham had made a personal effort to settle the dispute, and the State Board of Arbitration and Conciliation had been appealed to by the strikers. Through the intervention of this Board the strike was ended on the following conditions: the company agreed to reemploy all former workers without discrimination; all evicted families to be allowed to return to their houses; the weavers to receive 20 cents per roll pending the arbitration of the wage dispute.

The contest between the Hat Manufacturers' Association and the United States Hatters of North America, which began with the discontinuance by the manufacturers and a consequent boycott (q. v.) and strike, continued most of the year. On January 14 the 59 members of the Manufacturers' Association closed their establishments, about 20,000 journeymen hatters being out. The strikers exhausted their funds in the payment of benefits and various appeals to the American Federation of Labor secured \$41,852; besides this other appeals for funds were made. At the end of eight months 30 manufacturers had made an agreement on the basis of conditions existing prior to the strike. Fourteen others soon followed, and by November agreements had been made in practically all cases. See *BOYCOTT*.

On July 1 about 7000 members of the Amalgamated Association of Iron, Steel and Tin Workers struck, stopping operations in 190

mills belonging to the American Sheet and Tin Plate Company in Ohio, Pennsylvania, Indiana, and West Virginia. The strike was a protest against an order of the company, which is a subsidiary of the United States Steel Corporation, reducing wages and declaring for the open shop. Both union and non-union men joined at first, though the point at issue was the exclusion of the union from the company's mills. The Amalgamated Association's foothold in the tin mills has long been the last vestige of union influence in the mills of the Steel Corporation. The cause of the strikers was taken up at a special conference of labor leaders, under the auspices of the American Federation of Labor, at Pittsburg on December 13-14. This resulted in a general declaration of war upon the United States Steel Corporation. It was decided to appeal to all unions in this country for financial aid for the striking tin workers; and to begin a systematic campaign of organization among all employees of the corporation wherever located. After a conference in New York, it was announced on December 17 by officials of the Steel Corporation that they would operate their plants on a non-union basis or dismantle them. It was stated that of the 190 mills idle July 1 as a result of the strike, about 90 had resumed on an open-shop basis, and that the corporation would soon begin the erection of a tin mill of 100-mill capacity at Gary, Indiana, to cost \$4,500,000.

One of the most unusual and dramatic strikes of the year was that of the workers in the mills of the Pressed Steel Car Company at McKees Rocks, Pa., and in other mills in that region. These men, 5000 in number, were mostly unskilled laborers, the majority (60 per cent.) were foreigners, mostly Slavs, many could not speak English, and they were led by no trade union. Only most extreme provocation could have led such workers to a determined resistance, for they ordinarily endure injustice and exploitation with stolid indifference. From the first the management assumed a very supercilious attitude toward the strikers, refusing to listen to demands and declaring that the latter had the "right to quit." The causes of the outbreak were partly the extremely low rate of pay, which, though barely a living wage in normal times, had been reduced during the preceding six months, and partly the track and pooling systems of work. A track ran the full length of the twelve sections of the erection department. The trucks of the future car were placed on one end of this track and moved forward from section to section, emerging a finished car. The men performing a given operation were formed into a pool, being paid in a body. Each man was rated, that is, given a minimum wage and the surplus for the pool was divided among its members. The piece-wage system was used; the rates were not posted and therefore unknown to the workers; and rates applied to the output of the pool. Under these methods each section in the department stimulated the preceding and following ones, for delay in any one meant loss to others. Any loss through errors or lack of materials fell not upon the company or its agents, nor upon individual negligent workmen but upon the whole pool. Moreover the wage-system enabled the officials to juggle with the earnings of the men with-

out any check. Grafting by foremen, bookkeepers and others had been charged for years. It was claimed by the men that they often received less than their rated minimum wage. Many claimed they could not learn even what their rating was. Even had the rating and piece-wages been known the men could not have kept account of their earnings, for there were sometimes from 50 to 300 men in a single pool. The pay envelopes did not state the rating; the bonus, if any; the hours worked; nor the amount arbitrarily deducted for insurance. The workers found that there was no regularity in their pay; one of several years' experience might receive no more, or even less, than one of a few months' experience; men doing the same work for the same number of hours would receive different pay.

The strike lasted eight weeks. Immediately upon the outbreak of the strike, the company recruited several thousand strike-breakers, mainly in New York City. Their arrival was attended by increased rioting in which at least twelve rioters and police were killed, and by numerous attempts to destroy the works. The local police force was greatly strengthened and 150 troopers of the State constabulary were brought in. The company organized a commissary department, and provided rude sleeping accommodations and kept the strike-breakers within the works under strict guard. So rigorously were these workers dealt with that some who escaped brought charges of peonage against President Hoffstot of the Pressed Steel Car Company. The local judge refused to entertain these charges on the ground that the law under which they were brought was unconstitutional. In all some 400 of the strike-breakers quit and the widespread public indignation at the treatment they had received led to an investigation by the Department of Commerce and Labor. This revealed a startling condition of armed control over the workers. Thereupon the company, on September 6, reluctantly yielded to the demands of the strikers. It was agreed to return to the 1907 wage-scale (an advance of 10 to 15 per cent.); to modify the pooling system; to fix minimum wages; to abolish all financial relations of workers and foremen; to systematize the insurance payments and benefits; to abolish Sunday work; and to reemploy all strikers without prejudice. Trouble again broke out in the mills on September 15 and still again early in November, the company being charged with failure to keep its agreement. Matters did not come to complete rupture, but discontent and excitement continued until the close of the year.

The strike on the Georgia Central Railroad was a notable instance of the complication of a labor dispute with the race problem of the Southern States. During most of the last week in May no trains were run over that road as a result of a strike by white firemen occasioned by the employment of negro firemen. The strikers were sustained by a most vigorous public sentiment all along the route of the road, the inhabitants willingly suffering the want of many customary things. The road had regularly employed some negro firemen; it sought to place ten white firemen on the extra-list and give their places to negroes. This would have effected a saving of \$5 per day. The white firemen, numbering fewer than 100, feeling their standards of pay and living menaced, went on

strike. The intense feeling of patrons of the road made it unwise for the road to use negroes in place of the strikers. Through the intervention of Messrs. Knapp and Neill the latter were allowed to return to work under the old conditions, with the understanding that the matter would be submitted to arbitration. The arbitrators were Congressman Hardwick, chosen by the firemen, Col. Hilary A. Herbert, chosen by the road, and Chancellor Barrow of the University of Georgia. Late in June they decreed that negro firemen should have the same pay and the same chances of promotion as white firemen.

The men employed on the cars of the Philadelphia street railways went out on strike in June, on account of dissatisfaction with wages and arrangement of hours. They wished also to buy uniforms where they pleased, and to present their grievances through a representative committee. The company had just announced an advance in pay of one cent per hour to take effect July 1st. They therefore at first refused to negotiate with the men. The sympathy of the Philadelphia public for the employees was greatly strengthened by the moderation of the strikers and their declared willingness to return to work as soon as the company agreed to negotiate with their representatives. With the increasing confusion and disturbance, Mayor Reyburn endeavored to persuade the strikers to return to work on the ground that they were quasi-public servants. It was pointed out that the same reasoning could be used to induce the company to grant the strikers' demands. Soon after this intervention the strike was extended by the inclusion of the elevated lines. The mayor then offered his services as intermediary, and, as the result of considerable political pressure, the company yielded. On the day preceding the primary election the company announced that it was ready to take up with employees' representatives the questions of hours and conditions of work, that it conceded the right to buy uniforms from any one of five clothiers, consented to take back all former employees, and would not rescind the announced advances in wages.

On November 30 began a strike of 2300 railroad switchmen on thirteen different roads between St. Paul and the Pacific coast. This strike followed two weeks of negotiations between representatives of the Switchmen's Union of North America and of the railroads. The men demanded an advance of 6 cents per hour for a ten-hour day, double pay for Sundays, holidays and overtime, and the modification of the physical examination and the age limit placed upon switchmen entering the service. The managers' committee offered an increase of 20 cents per day of ten hours to all switchmen in a limited part of affected territory. Following the failure of the negotiations Martin A. Knapp of the Inter-State Commerce Commission and Charles P. Neill, Commissioner of Labor, requested the disputants to avail themselves of the Erdman act. The railroad managers at once consented, but the union committee declared that it would not submit to arbitration under any circumstances.

The strike had the effect of bringing freight transportation in the Northwest to an immediate standstill, entailing enormous losses to many lines of business, and throwing thousands

of men in various occupations out of work. The passenger traffic was not seriously crippled. By December 3 the railroads claimed to have imported 1500 men to take the place of the strikers. Moreover, more than 150 strikers, who belonged to the Brotherhood of Railway Trainmen, returned to work on orders from the Brotherhood officers. The railroads were able gradually to increase the amount and regularity of freight traffic, though fully normal conditions did not prevail at the end of the year. At that time efforts were being made in Washington, D. C., to adjust the differences through a conciliation board. The chief obstacle to a settlement was the absolute demand of the strikers that all be given their former positions. On December 31 it was announced that if the arbitration plan failed a much more extensive strike of railway employees was probable.

Other strikes of the year include that of the street railway employees at Omaha in September; that of 5000 granite cutters about Barre, Vermont, on November 17, on account of the proposed introduction of a pneumatic brush hammer; this continued, without violence, to the end of the year: that of the laborers engaged in traffic on the Great Lakes, beginning April 30: that of the bakers on New York City's East Side on the same date: that of Chicago drivers, to the number of 1000, inaugurated May 8; and that of the boilermakers at Montreal, Dunkirk and Schenectady, N. Y., Richmond, Va., and Pittsburg, Pa., during December, on account of the standard time system, closed on December 28 by mutual concessions.

CANADA. The only noteworthy strikes were those of the coal-miners. In April about 3000 men employed in the southern Alberta field struck for better terms; the trouble was settled by an arbitration board late in May, the miners returning to work on the old basis under a three-year agreement. On July 6 the employees of the Dominion Coal Company at Sydney, Glace Bay, Cape Breton Island, struck under the leadership of officers of the United Mine Workers of America. Other collieries in that region were able to continue because their miners belonged to the Provincial Workman's Association, a rival union controlled by Canadians. Previously to the strike the members of the United Mine Workers had appealed to a conciliation board on the ground that the company was discriminating against them in favor of members of the strictly Canadian union. The board reported that no such discrimination was found. The miners then struck for higher wages, without asking for an arbitration board. There was much rioting and troops were dispatched to preserve order. There was intense feeling in many quarters against the domination of Canadian workers by American trade union officials. This became the most important feature of the strike, and most of the Canadian unions lined up in support of internationalism or against it. The strike collapsed in August, for, although disorder continued for some time, the introduction of more and more strike-breakers gradually increased the output of the mines. The strike of about 1500 miners at Springhill at the suggestion of officials of the United Mine Workers caused additional protests against American domination. This strike was broken late in December by labor brought in from Montreal. These strikes in Nova Scotia

reduced the output of coal by about one million tons.

FRANCE. France was the scene of many and unusual labor disturbances during the year, a number of the most important being socialistic and even revolutionary in origin and purpose. The notable strikes of the year were those of governmental employees. About the middle of March the postal, telegraph and telephone employees struck on account of dissatisfaction with the system of promotion. Premier Clemenceau declared that the strikers had struck without cause, and the government at once suspended 38 ringleaders and sentenced 8 others to six days' imprisonment. This demoralized the strikers, who returned to work on the 23d with the understanding that none of them should be punished. The strikers demanded that M. Simyan, Under-Secretary of State for Posts and Telegraphs, be dismissed, but the government refused its assent. M. Simyan was made a special mark by the strikers, because he had issued orders not only for bidding trade-union agitation within public offices, but also prohibiting public employees forming trade unions.

On May 11 these same employees struck again. Some 600 of the strikers, much to their astonishment, were summarily dismissed from the public service. The strikers, under the lead of M. Pataud, held excited public meetings at which the government was roundly denounced and the *Internationale*, the song of revolt, was sung. At the same time Premier Clemenceau ordered troops into the city, organized lines of automobiles and carrier pigeons, and placed soldiers at the work of assorting mail. M. Pataud sought to strengthen his weakening ranks by inducing the electricians to strike and thus plunge the city into the horror of darkness. They refused. He did, however, succeed in inducing the secretary of the *Confédération Générale du Travail* to order a general strike. The general strike was a complete fiasco. The government thus won a conflict full of momentous possibilities. For further details of both these strikes, see FRANCE, paragraphs on *History*.

There were numerous strikes among the sailors, naval reservists and dock-laborers, including the cities of Bordeaux, Marseilles, Nantes, Dunkirk and Lorient. These crippled the coast trade and interfered with international shipping. The strike of the button-makers in the region of the Oise continued for six weeks, was attended by rioting and incendiarism, and was settled in favor of the employees, who demanded uniformity in wages throughout the region. That of the operatives in the woolen-mills in the south of France at Mazamet continued for four months with much violence; it was concluded in May, the workers securing higher pay.

SWEDEN. The most successful attempt at a general strike yet made was that in Sweden led by the Swedish General Federation of Labor. The strike followed a series of troubles in the paper pulp, the iron and steel, the tailoring, the railway shops, and a few minor industries. In several cases the workmen had broken contracts or refused the awards of arbitrators and the General Association of Employers had declared a general lock-out in the above trades. This declaration led to the order for a general strike on August 4, an order obeyed by about 285,000 men, 30,000 of whom were in Stockholm. Among the strikers were the provision

and public-house laborers, gas and electric light, railroad, postal, telegraph and street railway men, printers, sextons, and a few agricultural workers. For an account of other features of the strike, see SWEDEN. Its failure was doubtless due in part to its incompleteness, many unions not responding; in part to lack of public support; and in part to the fact that when few members are earning a strike fund proves an inadequate support.

NEW SOUTH WALES. A strike of 12,300 coal-miners in the Maitland-Newcastle district began on November 7. Thousands in other industries were soon rendered idle; and before the close of the strike in December business generally was demoralized, owing to the small supplies of reserve coal on hand and the difficulty of importations from Japan on account of sympathetic strikes of dock-laborers. Coastwise and international shipping were crippled. This strike was remarkably effective because of the scientific spirit in which it was conducted; all matters were handled by a strikers' congress and the open support of many other unions was secured. On December 17 the government passed a law rendering both strike-leaders and employers who instigate or aid a strike or lock-out liable to immediate arrest and imprisonment for one year, without alternative of fine. On the same day agreement was reached and work was resumed on the 20th.

NATAL. About the middle of April several thousand government railway employees went on strike, refusing an offer of the government to inquire into all grievances. The strikers had great political power, owing to their number and the solidarity of their vote, and there was fear that the strike might embarrass the formation of the South African Union. The government nevertheless dealt severely with the leaders and threatened to discharge all employees remaining out after a certain date. Outside workmen were brought in and the strikers gradually returned to work, matters being again almost normal by the middle of May.

STRONG, EDWARD TRASK. An American rear-admiral (retired), died March 18, 1909. He was born at North Andover, Mass., in 1840. After studying at Andover he entered the navy as a volunteer officer in 1862. He served throughout the Civil War, and in 1868 was commissioned ensign in the navy. By promotion he rose to the rank of commander. He served at sea on the North Atlantic, Pacific, European and Asiatic stations. During the Spanish-American War he was equipment officer at the Portsmouth Navy Yard, and had charge of Admiral Cervera (q. v.) when the latter was detained there as a prisoner. In 1900 he retired from active service with the rank of rear-admiral.

STURGIS, RUSSELL. An American architect and author, died February 11, 1909. He was born in Baltimore county, Md., in 1836, and graduated from the College of the City of New York in 1856. He studied architecture in Europe, and practiced actively until 1880, when he was obliged to travel on account of his health. From 1885 he was active in the management of art societies in New York City, and in lecturing on subjects relating to art. He was editor in decorative art subjects for the *Century Dictionary*, and of fine art in general for

Webster's International Dictionary. He contributed articles on art to the *New International Encyclopædia*. He edited also a *Dictionary of Architecture and Building* (3 vols., 1901-2). In addition to these editorial labors, Mr. Sturgis was a prolific writer on art subjects. Among his works are *European Architecture, A Historical Study* (1896); *How to Judge Architecture* (1903); *The Appreciation of Sculpture* (1904); *The Appreciation of Pictures* (1905); *History of Architecture* (vol. I., 1906) and many monographs in periodicals. Mr. Sturgis contributed articles on art subjects for many years to *Scribner's Magazine*.

SUBWAYS. See TUNNELS.

SUDAN, ANGLO-EGYPTIAN. A territory extending from the southern boundary of Egypt (the 22d parallel) to Albert Nyanza and the northern frontier of Uganda. Estimated area of the 13 constituent provinces, 950,000 square miles. Population, about 2,000,000. The chief towns are Khartum, the capital (population 18,235), Omdurman (population about 42,780), Halfa, Berber, Suakin, Port Sudan, El Obeid, Kassala, and Dongola. The government has undertaken to promote primary, secondary, and industrial education, and Gordon Memorial College, opened at Khartum in 1902, has over 500 students. Much of the country is fertile and well adapted to the raising of cotton and food grains, but it has not yet recovered from the desolating tyranny of the Mahdi and Khalifa (1882-1898). Over 1,400,000 acres are under cultivation. The vast forests are rich in valuable woods, barks, and gums. Imports and exports in 1907 were valued at ££1,214,859 and ££357,729, respectively (the Egyptian pound is worth \$4.8943). The imports include clothing, machinery, railway material, and coal; the exports, gum, ivory, and ostrich feathers. Besides the military (Sudan) railway from Cairo to Khartum (1047 miles), there is a line from Port Sudan and Suakin to the affluence of the Nile and the Atbara (311 miles), and a branch of the Sudan Railway from Abu Hamed to Kareima. Other lines and extensions are projected. There are over 4400 miles of telegraph line, connecting the principal towns with one another and with Cairo. For 1908 the estimated revenue and expenditure were ££1,000,201 and ££1,253,207, the balance of ££253,008 to be made up by Egypt. At the head of the Sudan administration is a governor-general, who is appointed by the Egyptian government with the assent of the British government. Each of the 13 provinces is under a governor, who is a British officer in the Egyptian army. The Governor-General in 1909 was Lieutenant-General Sir Reginald Wingate, Sirdar of the Egyptian army.

SUEZ CANAL. See CANALS.

SUGAR. The sugar crop of the world in 1909, according to estimates made by Willett and Gray, amounts to 14,446,000 tons. This is a decrease of over 100,000 tons, compared with 1908. The estimates by countries is as follows: United States (cane sugar, Louisiana and Texas), 343,000 tons; Porto Rico, 280,000; Hawaii, 490,000; Cuba, 1,700,000; Mexico, 130,000; Demerara, 115,000; Peru, 150,000; Argentina, 120,000; and Brazil, 276,000, which with the West Indies and Central America, brings the total for America up to 3,941,000 tons; British India, 1,800,000; Java, 1,200,000;

Formosa, 130,000; Philippine Islands, 145,000; Australia and Fiji Islands, 224,000; Africa, 365,000 (including 220,000 tons in Mauritius); Spain, 16,000, making the total cane sugar production of the world 7,821,000 tons.

The beet sugar crop of Europe is estimated at 6,190,000 tons, and in the United States at 435,000 tons. The consumption of sugar is said to be increasing more rapidly than the production.

The latest complete returns for the beet sugar industry in the United States are for 1908. In that year unfavorable weather conditions reduced the acreage of beets harvested, so that although the yield and quality were generally good, there was a decreased production of sugar. There were 421,306 acres planted in beets in the United States, Colorado leading, with Michigan second, and California third. In 1908, there were 62 factories in operation, which together worked 3,414,891 tons of beets and produced 425,884 tons of sugar, 8 per cent. less than in 1907, and 12 per cent. less than in 1906. The use of beet pulp for feeding is increasing; 11 factories have installed apparatus for drying the pulp, and most of the others sell or feed it in the wet condition.

In Canada the beet sugar industry has been decidedly more satisfactory to the farmers than to manufacturers. Only two of the five factories built are now in operation. The cold climate, with attendant difficulty in storing the beets, has made a short campaign, and a long period of idleness for the factory. Last year about 26,000,000 pounds of beet sugar were produced.

An effort is being made to promote a syndicate in England to manufacture sugar from beets, especially in Lincolnshire. Half of the required area of sugar beets has been pledged for a period of five years. England imports nearly \$100,000,000 worth of sugar annually and produces none.

The government of Victoria, Australia, is making an effort to revive the beet sugar industry, which failed when attempted ten or twelve years ago. A large factory, built under government patronage, is to be used as an experimental factory to aid and encourage beet growing, and sugar beet experiment stations are to be started in various localities, with government officers in charge.

The Japanese government has endeavored to encourage the production of sugar in Formosa, to be refined in Japan. A law recently passed provides for the remission of duties on raw sugar imported into Japan and refined and exported within a year. Thirty new sugar factories are under way in Formosa, with a total crushing capacity of 4450 tons of cane daily, and with a capital of about \$3,000,000. See **PHILIPPINES** and **PORTO RICO**.

Fraud in the weighing of sugar at the Port of New York, which resulted in evading customs duties, was exposed during the year, and led to a civil suit against the American Sugar Refining Company, as a result of which the company paid a penalty of \$135,486.32, and made restitution of \$2,000,000 in unpaid duty. Suits against officials of the company are pending. See **TRUSTS**.

Sugar manufacture and sugar chemistry received much attention at the seventh International Congress of Applied Chemistry, held in London the past summer. In connection with this congress the sixth meeting was held of the International Commission for Uniform Methods of Sugar Analysis.

A sugar experiment station was started the past year at Tucuman, Argentina, with R. E. Blouin, formerly of the Louisiana Sugar Experiment Station, as director.

SULEIMAN Effendi. Brother of Sultan Mohammed V. and of Abdul Hamid, former Sultan of Turkey, died July 14, 1909. He was born in Constantinople, in 1860, the sixth son of Sultan Abdul Aziz. All his brothers, except Abdul Hamid and Reshad (Mohammed V.), predeceased him, but his cousin, Yusuf-Izz-ed-Din, son of Abdul Aziz, born in 1857, came between him and the reigning Sultan. He lived in retirement, but was allowed somewhat greater liberty by Abdul Hamid, than was given his other brothers. His tastes were agricultural and he was nicknamed "Farmer Suleiman" by the Turks.

SULPHATE OF AMMONIA. See **FERTILIZERS**.

SUMATRA. A large island of the Malay Archipelago, forming an outpost of the Dutch East Indies. In parts of the interior Dutch control is merely nominal. See **DUTCH EAST INDIES**.

SUN. See **ASTRONOMY**.

SURINAM. See **DUTCH GUIANA**.

SUSQUEHANNA RIVER BRIDGE. See **BRIDGES**.

SWARTHMORE COLLEGE. An institution of higher learning at Swarthmore, Pa., founded in 1869. The students and faculty in the autumn of 1909 numbered 380. There were 35,200 books in the library. During the year \$75,000 was received in gifts. Among the changes in the faculty were the appointments of Dr. Harold C. Goddard, professor of English, and Dr. Edwin Fauver, assistant professor of biology and director of physical training. The productive funds of the college amount to about \$7,085,000. The total income is about \$200,000. The president is Joseph Swain, LL. D.

SWAZILAND. A British South African protectorate. Area, 6536 square miles. Population (1904), 85,491 (84,529 Swazi—a section of the Zulu race—and 890 whites); estimated 1907, 90,890. The natives grow corn, millet, ground nuts, beans, sweet potatoes, etc., and the country is said to be rich in minerals. Tin is mined. Swaziland is a member of the South African Customs Union. Revenue and expenditure (1908), £39,529 and £57,568. The costs of the Swaziland Concessions Commission and of the expropriation of monopolies account for the excess of expenditure over revenue. The Resident Commissioner (1909, R. T. Coryndon), has headquarters at Mbabane. Native affairs are subordinately administered by native chiefs. The native ruler is Sobhuza, a ten-year-old child, under the regency of his grandmother, Nabotsibeni. By the South Africa Constitution act, 1909, it is provided that no land of the native reserves in Swaziland shall be alienated from the native tribes.

SWEDEN. A constitutional monarchy of northern Europe. Capital, Stockholm.

AREA AND POPULATION. The total area is 172,877 square miles. The population, according to the census of 1900, was 5,136,441, and was estimated in 1907 at 5,377,713 (2,626,456 males, 2,751,257 females). In 1907 the total living births were 136,600; deaths, 78,100; marriages,

33,200; emigrants, 22,078, of whom 19,325 went to the United States. The increase of population in 1908 was greater than in any previous year of the past ten, being 51,887, or 9.65 per thousand. The increase was confined to the large cities, the small industrial centres not having recovered from the crisis of 1907-8. Stockholm had, at the end of 1907, 337,460 inhabitants; Göteborg, 160,523; Malmö, 79,817; Norrköping, 45,203; Hålsingborg, 32,238; Gälle, 31,367.

EDUCATION. Primary education is free and compulsory. In 1906 there were 13,969 public elementary schools, with 768,148 pupils. There were (1907) 77 public high schools, with 21,602 pupils; 35 people's high schools, 1827 pupils; 14 normal schools, 1458 pupils; 19 technological schools, 4344 pupils; and two universities, at Upsala (1884 students) and Lund (922 students). There are private universities at Stockholm and Göteborg, and a state faculty of medicine at Stockholm, with an average attendance of 256. The state supplied in 1906 one-fourth of the amount (30,615,183 kronor) expended on primary education. Among the recruits (Beväring, 1904) only 0.59 per cent. were unlettered, and only 1.11 per cent. were unable to write. The Lutheran is the state religion; entire religious toleration prevails.

AGRICULTURE, ETC. Of the total land area 8.9 per cent. is under cultivation, 3.3 per cent. natural meadow, and 51.9 per cent. under forests, the products of which constitute a valuable export. The public forests are mostly owned by the Crown and cover an area of 7,125,845 hectares. The yield in 1906 amounted to 2,649,910 cubic metres of timber. See FORESTRY.

In 1906 the farms under cultivation numbered 355,361, of which 89,900 were of 2 hectares (1 hectare=2.471 acres) and under; 224,599 of from 2 to 20; 33,548 of from 20 to 100; and 3239 of more than 100. The 1908 harvest is reported to have been the best in years. The estimate by the Swedish Ministry of Agriculture of the production of principal crops for 1908 in comparison with that for the preceding year, and the area in hectares (1906), are given as follows:

	Area (hectares)	1907 Bushels	1908 Bushels
Potatoes	152,200	52,270,150	78,019,724
Oats	812,600	67,741,291	72,773,100
Rye	410,900	21,596,600	26,051,505
Barley	203,500	13,552,855	15,519,949
Mixed grain	149,100	12,774,474	14,649,910
Wheat	85,800	5,953,495	6,755,712

The production of sugar beets in 1908-9 amounted to 900,934 tons, yielding 138,061 tons of sugar. The production in 1909-10 was estimated at 864,400 tons; and the sugar yield, at 121,770 tons. At the end of 1906 the number of horses in Sweden was 563,554; cattle, 2,600,151; sheep, 1,051,119; swine, 872,363.

MINING AND METALS. Mining, already one of Sweden's most important industries, is making constant progress, through the introduction of new machinery. In 1907 there were 31,700 persons engaged in mining establishments. The output in 1907 was as follows: Iron ore, 4,480,070 tons; coal, 305,338; zinc ore, 50,884; sulphur pyrites, 27,133; copper ore, 21,957;

manganese ore, 4334; silver and lead ore, 1987. The pig-iron output was 615,778 tons; the bar iron, 417,535. The gold produced amounted to 28.075 kilos; silver, 928.8; lead, 812,625; copper, 1,577,452; and zinc, 289,000.

MANUFACTURES. The timber and wood-working industries are of great importance. There were in 1906, 1377 saw and planing mills, employing 40,347 persons and having an output valued at 162,354,070 kronor (1 krona=26.8 cents); 502 joinery and furniture factories, with 11,906 employees, and output 26,346,502 kronor; 138 wood-pulp factories, with 9257 employees, and output 57,298,038 kronor; and 68 paper and pasteboard mills, with 7949 employees and output 42,330,885 kronor.

COMMERCE. The imports and exports for three successive years are given below in kronor:

	1905	1906	1907
Imports....	582,084,357	644,227,836	682,104,613
Exports....	450,211,733	504,284,813	524,662,547

Germany furnished imports to the value of 240,777,000 kronor, and received exports valued at 108,719,000; Great Britain, 178,528,000 and 182,115,000; United States, 61,343,000 and 13,779,000; Denmark, 50,540,000 and 57,705,000; Russia and Finland, 30,619,000 and 23,813,000; Norway, 23,521,000 and 25,452,000; France, 23,099,000 and 39,522,000.

COMMUNICATIONS. The total length of railways at the end of 1907 was 8218 miles, 2693 miles of which belonged to the state. Receipts (1905) amounted to 109,553,318 kronor; expenditures to 72,358,900. The cost of construction for the state railways to the end of 1905 was 446,066,590 kronor; passengers carried (1905) numbered 13,353,844; goods carried amounted to 10,434,340 tons. Cost of private railways to the same date was 479,788.772 kronor; number of passengers (1905), 28,340,930; weight of goods, 18,623,820 tons. In 1906, 116,166 ships passed through the canals. The total length of telegraph and telephone lines (exclusive of private lines) at the end of 1907 was 21,046 miles, of which 16,304 belonged to the state; total length of wires, 164,109 miles, of which the state owned 149,332. The remainder was railway property. There were 2632 telegraph offices, which transmitted 3,780,319 messages. There were (1907) 3648 post-offices; total post-office receipts, 19,651,075 kronor; total expenditures 17,842,211 kronor. The total number of ships engaged in foreign and domestic trade was (1907), 2972, of 742,361 tons; of which 1090, of 488,362 tons, were steamers. In 1907, 36,088 vessels of 9,873,00 tons entered, and 35,964 of 9,792,000 cleared at the ports.

FINANCE. The krona is the unit of value, and is worth 26.8 cents. The budget for 1908 balanced at 202,375,000 kronor; for 1909, at 228,139,000.

The public debt stood, January 1, 1909, at 515,375,745 kronor (external, 462,824,385; internal, 52,551,360).

The Riksbank belongs to the State and is the only bank of issue. It is capitalized at 50,000,000 kronor, has a reserve fund of 9,455,000, and has deposits amounting to 61,139,167. Its books balanced, January 1, 1908, at 382,981,674 kronor. There were (1908) 19 conjointly responsible private banks, with a collective capital of 131,300,000 kronor, 83,868,000 reserve,

and deposits amounting to 607,277,892; and 64 joint-stock banks with total capital, 198,612,830 kronor, reserve 98,255,123, and deposits to the sum of 706,434,783. The post-office savings bank (January 1, 1908) had 566,976 depositors and 50,680,935 kronor of deposits; other savings banks, 1,476,119 depositors, deposits amounting to 688,614,199 kronor, and capital and reserve funds to the sum of 57,858,603. The private savings banks are reported to have had, June 1, 1909, about 700,000 depositors, and about 260,000,000 kronor deposits.

NAVY. The effective navy in 1909 included the following: 12 armored coast-defense vessels of 42,560 tons; 1 armored cruiser of 4060 tons; 7 armored gunboats of 3220 tons; 4 gunboats of 1860 tons; 6 torpedo boat destroyers; 27 first-class torpedo boats; 3 submarines. In addition there were school ships, dispatch boats, and various obsolete craft. Several torpedo boats and destroyers and one submarine were building.

ARMY. The army is divided into six divisions and the troops of Gottland and Boden. It embraces 28 regiments (81 battalions) of infantry; 8 regiments (50 squadrons) of cavalry, 6 regiments and 1 corps of field artillery (60 batteries, of which 3 are horse artillery, 12 howitzer batteries, with rapid fire guns); 1 regiment (7 batteries) of heavy artillery, 1 regiment (10 companies) of fortress artillery, 4 battalions (16 companies) of engineers, and 6 battalions (18 companies) of train. The war organization of a division would represent 2 brigades of infantry of 6 battalions, 1 regiment of four squadrons of cavalry, 1 regiment of field artillery, with 11 batteries of which two are howitzers, 1 company of engineers, pontoon equipment, telegraph section, and 1 battalion of train. The active army in 1909 consisted of 2573 officers, 464 employees, 2407 non-commissioned officers, 24,104 volunteers, and an annual contingent of recruits, making a grand total of 60,492 men and 8734 horses. In addition there were on leave and in the reserves, 302,850, making a war effective of 363,342, to which might be added the Landstorm of about 170,000.

GOVERNMENT. The executive authority is vested in the King acting through a responsible Council of State, and the legislative power in a Diet composed of two Chambers. The First Chamber has 150 members, elected by the provincial councils and the municipal corporations; the Second Chamber, 230 members, elected by universal suffrage. The King in 1909 was Gustaf V. (born June 16, 1858), who married, September 20, 1881, Princess Victoria of Baden, and succeeded to the throne December 8, 1907. The heir-apparent is Gustaf Adolf, born November 11, 1882. The Council of State of June 11, 1909, was composed as follows: Minister of State, S. A. A. Lindman; Foreign Affairs, Count A. F. Taube; Justice, G. A. Petersson; Finance, C. J. G. Swartz; Interior, Count H. E. G. Hamilton; Marine, Count C. A. Ehrensvald; War, Major-General O. B. Mabm; Instruction, Dr. P. E. Lindström; Agriculture, S. O. Nylander; without portfolio, C. F. W. von Hederstierna and K. H. von Sydow.

HISTORY

POLITICAL AFFAIRS AND FOREIGN RELATIONS. The new Riksdag met on January 16. The government announced that to meet the needs of the

budget, a stamp duty and a slight increase of the income tax would be proposed. One of the important measures of the session was the electoral reform law providing for universal manhood suffrage and proportional representation, which was carried in both Chambers by large majorities. In July a train ferry service between Sassnitsch in Germany, and Trelleburg in Sweden, was formally opened in the presence of the King of Sweden and the German Kaiser. The Hague Court of Arbitration decided the frontier dispute between Sweden and Norway on October 23, awarding the Grisbäddarne islands, valuable for the fisheries, to Sweden, and Skjoette Grund to Norway. See also the article **ARBITRATION, INTERNATIONAL.**

THE GREAT STRIKE. One of the most formidable strikes in the recent history of labor disputes occurred in Sweden in August. It arose from a disagreement between the General Association of Employers and the General Federation of Labor as to the scale of wages in various classes of labor. A series of comparatively unimportant labor disputes had occurred in several trades, including the paper and the iron and steel industries. In some instances the strikes were provoked by lockouts, the employers charging the workmen with breaking their contracts, and not complying with the decisions of their central organizations. In others, strike followed the employers' refusal of certain demands. Efforts at official mediation having failed, the employers declared a lockout which involved about 80,000. The Labor Federation thereupon declared a strike in the industries affected and later, on August 4, a general strike. The number at first involved was 124,000, but the efforts to bring on a general strike were so far successful that the number rose to 285,000. This did not, however, come up to the expectations of the strikers, who hoped to bring out all the unions. The railway employees did not go on strike, nor did the agricultural laborers. The total number of workmen in Sweden, exclusive of agricultural laborers, has been estimated at 460,000. The agricultural laborers are said to number 800,000. Street traffic in Stockholm at the beginning of the strike was virtually at a standstill; shops and public houses were closed; the foreign visitors left the city, and there was danger for a time of a shortage of food. The King intervened on August 7 with the representatives of both parties, but neither appeared to desire mediation. The printers went on strike, and on August 9 the newspapers announced that they would cease to appear. On the following day the Labor paper was the only one published. Afterwards the others were resumed, but on a reduced scale. Early in the strike, the government, with the approval of the strikers themselves, prohibited the sale of spirits. This measure proved so effective in reducing drunkenness and maintaining public order, that it strengthened the arguments of the temperance reformers, who demanded that the prohibition should not be repealed even after the strike ended. The government appointed a committee in August to consider the question in its financial bearings, that is whether it would be possible to withdraw from the local administering this source of revenue. The effect of the strike was greatly mitigated through the efforts of the Public Security Brigade, an organization of volunteers of all classes who supplied labor for such services as were especially

necessary to the public safety and welfare. The places of many strikers were taken by voluntary workers. The community did not support the demands of the laborers. The appeals to solidarity among the workmen were not effective. Within the first few weeks the number of workmen who went back to work independently was estimated at 50,000. The Federation of Labor ordered all employees not involved in the original strike to go back to work on September 11, and by the middle of that month the secondary strike was at an end. At the end of September the government appointed a conciliation committee to try and adjust differences between the Federation of Labor and the Employers' Association in the original dispute, but it failed. At that time 60,000 were still reported idle. Further efforts of the government, in November, were unsuccessful. The employers, however, agreed to end the lockout in the iron industry. See STRIKES, and ARBITRATION, INTERNATIONAL.

SWIMMING. C. M. Daniels of the New York Athletic Club again demonstrated in 1909 that he has no equal in amateur swimming circles. Record after record fell before his prowess during the year, the most important ones recognized by the Record Committee of the Amateur Athletic Union being: 220 yards, indoor, 8 turns, 2 minutes 25½ seconds; 880 yards, outdoor, 7 turns, 12 minutes 18½ seconds; 1-mile, outdoor, 15 turns, 26 minutes 19½ seconds. The Amateur Athletic Union competitions in 1909 were held at various times in New York, Chicago, Pittsburg, St. Louis, Montclair, Philadelphia and Brookline, Mass. The important events in these meets and the winners of each were: (Indoor) 50, 100, 220 and 500 yards, C. M. Daniels; (outdoor) 440 and 880 yards, C. M. Daniels; 10 miles, J. H. Handy of the Illinois A. C.; 400 yards relay (4 men, 100 yards each), C. M. Daniels, G. Smith, L. B. Goodwin and J. H. Riley of the New York A. C.; (indoor) 200 yards, breast stroke, M. Goessling of the Missouri A. C.; (indoor) fancy diving, F. Bornemann of the Chicago A. A.; (outdoor) high diving, G. W. Gaidzik of the Chicago A. A.; water polo, Chicago A. A.; and plunging, A. McCormack of the Brookline S. C.

The Canadian amateur championships were held at Montreal, R. M. Zimmerman of the Montreal S. C. winning the 40- and 100-yard races and the fancy diving event; L. Earl of the Montreal A. A. A. the 220-yard race, and E. L. Wilson of the Montreal A. A. A. the high-board diving. In the outdoor championships held at Ottawa G. Johnston of Ottawa won the 50- and 100-yard races and Zimmerman the high and variety diving events. The English amateur swimming championships were won by P. Radmilovic in the 100 yards and by T. S. Battersby in the 220, 440, 500 and 880 yards and the mile.

The Intercollegiate championship meet held at New York on March 25 was won by the University of Pennsylvania with a total of 27 points. Princeton finished second with 11 points, and Yale third with 7 points. Harvard, Columbia and the College of the City of New York failed to score a point. In water polo Yale and Princeton were tied for the highest honors with 4 games won and 1 lost each. In the play-off Yale won by a score of 1 to 0. No new records were made in the intercollegiate meet.

SWINBURNE, ALGERNON CHARLES. An English poet, died April 10, 1909. He was born in London, April 5, 1837, the son of Admiral Charles Henry Swinburne and the daughter of the third Earl of Ashburnham. His father possessed considerable wealth and owned a beautiful place on the Isle of Wight, where the poet spent most of his boyhood. He was sent to Eton, and in 1856 went to Balliol College at Oxford. There he became intimate with a literary set which included John Nichol, T. H. Green, R. V. Dacey and James Bryce, the present British Ambassador to the United States. He did not distinguish himself particularly at Oxford, although he contributed prose and verse to a volume called *Undergraduate Papers*, edited by John Nichol. He left Oxford without having taken his degree in 1860. Following this he traveled on the continent of Europe, visiting Landor at Florence in 1864. Shortly before this tour he had published at his own expense his first volume of poetry, containing "The Queen Mother" and "Rosamund," two dramas in the Shakespearean style. Even before this he had made the acquaintance of Rossetti, Burne-Jones and William Morris and on his return from Europe he became closely associated with this group of pre-Raphaelites. The volume of verse had attracted no great attention, and in 1865 he published *Atalanta in Calydon*, a beautiful lyric drama cast in the mold of ancient tragedy. This was so well received that Swinburne was hailed as a new poetical star of the first magnitude. Following this he published *Chastelard*. This was based on the life of Mary, Queen of Scots, and in it appeared the first symptoms of Swinburne's eroticism, and it was as violently condemned by the critics as *Atalanta* had been praised. This he followed with the remarkable poems *Faustine* and *Dolores*, which caused even greater sensation than *Chastelard*. So great indeed was the shock to the British mind that when *Laus Veneris and Other Poems and Ballads* was published in 1866, the British publisher suppressed the first edition. To his critics Swinburne replied with unmeasured scorn in *Notes on Poems and Reviews*, published in 1866. It was at this time that the poet went to London to live, and passed much time with Theodore Watts-Dunton, Whistler, Burne-Jones and Rossetti. The struggle for liberty then going on in Italy excited his sympathy and resulted in *The Song of Italy* (1867) and *Songs Before Sunrise* (1871). In the meantime had appeared several lyrics on other themes, of which the finest was *Ave Atque Vale* (1868) in memory of Baudelaire. He continued the history of Mary, Queen of Scots, begun in *Chastelard*, with *Bothwell* in 1874, and afterwards completed it in *Mary Stuart* in 1881. *Bothwell* was received with an approval which critics for the most part had withheld from many of the lyrics. At about this time Swinburne turned his attention to prose and published a critical study of Shakespeare and an essay on William Blake. Following this came *Songs of Springtide*, which in turn was followed by *Mary Stuart*, noted above. In 1878 appeared a second series of *Poems and Ballads*; the great odes to Victor Hugo; various beautiful sonnets and several translations from Villon. In 1882 appeared the volume entitled *Tristram of Lyonesse and Other Poems*, which contained some of the most remarkable poetry of the sea ever written. A

Century of Roundels appeared in 1883, and in 1884 *A Midsummer Holiday and Other Poems*. *Marino Faliero*, a tragedy, followed in 1885, and another tragedy, *Locrine*, in 1887. A third series of *Poems and Ballads* was published in 1889; *The Sisters*, a tragedy (1892); *Astrophel and Other Poems* (1894); *A Tale of Balen* (1896); and *Rosamund, Queen of the Lombards* (1899). Late in the poet's life came a number of prose works, among them being a novel entitled *Love's Cross Currents*, which, published in 1895, did not excite much comment.

On the death of Tennyson the judgment of the English-speaking world selected Swinburne for the post of poet-laureate, but his early attitude of defiant revolt against the conventional social order and against kings and priests prevented his appointment, though he was universally acknowledged as the greatest surviving English poet. In his later years the note of rebellion was less violently sounded and other feelings, the love of the sea and little children, held a large place in his poems. He holds a unique position as an artist in verse by his unsurpassed command of all the resources of metrical technique. He invented a number of new rhythmic forms and in the old which he used he developed new beauties. His work in prose criticism suffers from his faults of passion and prejudice and occasionally exaggeration. Swinburne was said by those who knew him well to have a singular lack of the sense of humor and this occasionally betrayed him into absurd performances. An amusing example of this was on the occasion of a public dinner, when he brought a footstool upon which he insisted upon sitting literally at the feet of Robert Browning. He was small of stature, standing scarcely five feet two inches, and was slight of frame and lean. In spite of this he had a sound constitution and led a vigorous life. He was a powerful swimmer, and he especially loved walking, in which he persevered without regard to the weather. His conversational powers were uncommon from his early youth, and despite of his lack of humor he was noted for his keenness of wit. Swinburne will undoubtedly live to posterity as one of the greatest and possibly the last of the Victorian poets.

SWINE. See STOCK RAISING.

SWITZERLAND. A federal republic of central Europe. Capital, Bern.

AREA AND POPULATION. Total area, 15,975 square miles; population (1900), 3,315,443; estimated, 1907, 3,525,256. Of the population in 1900, 2,312,949 spoke German, 730,917 French, 221,182 Italian, 38,651 Roumansch, 11,744 other languages. Of the 22 cantons, 15 are German, 5 French, one is Italian, and one Roumansch and Italian. There were, in 1908, 27,637 marriages, 99,464 births (including stillbirths), 60,920 deaths (stillborn 3223). Bern had (1909) 78,500 inhabitants; Zurich, 183,500; Basel, 129,600; Geneva, 121,200; Lausanne, 60,000; St. Gallen, 55,400; Chaux-de-Fonds, 38,700; Lucerne, 36,200; Bienne, 28,800; Winterthur, 27,700.

EDUCATION. Education is controlled by cantonal and communal authorities; there is no centralization. Primary instruction is free and nominally compulsory; attendance is not strictly enforced in the Roman Catholic cantons. There were in 1905 4362 primary schools,

exclusive of infant, with 11,183 teachers and 502,211 pupils; 609 secondary schools, with 1794 teachers and 46,904 pupils; 42 middle schools (preparatory), with 892 teachers and 12,781 pupils; and 43 normal schools with 2885 students. There are a few special schools, and six universities. Illiteracy is rare in the Protestant cantons.

Entire religious toleration prevails, except that the order of Jesuits is debarred in the confines of the Confederation. There were, according to the census of 1900, 1,916,157 Protestants, 1,379,664 Roman Catholics, and 12,264 Jews.

INDUSTRIES. The Confederation, with its numerous and highly developed industries, is largely dependent upon the outside world for its supply of raw materials. The problem of housing and feeding its large industrial population is becoming more and more a vital one for Switzerland. Though wages are good, the cost of living has increased out of proportion. Cereals, flour, meat, sugar, etc., are imported in increasing quantities. Switzerland has no coal, no iron, no copper.

Agriculture is pursued by about 300,000 peasant proprietors (1,067,905 of the total population). Of the total productive area, 16.4 per cent. is under crops and gardens, 18.7 per cent. under fruit, 35.8 per cent. under grass and meadow, 29 per cent. under forest. Of the total area, 28.4 per cent. is unproductive. Rye, oats, potatoes, the vine, tobacco, etc., are grown, and cheese and condensed milk are manufactured. There were (1903) 2,080,297 cattle, 161,936 horses, 219,438 sheep, 555,261 swine, and 354,634 goats. Of the 2,105,214 acres of forest, 1,403,732 acres belong to municipalities, etc., 609,855 to private persons, 91,587 to the cantons. Federal supervision extends over 1,119,270 acres. See FORESTRY.

There were, in 1905, 242,543 industrial and commercial establishments, and 71,413 home industrial enterprises. Silks, cottons, linen, lace, thread, woollens, leather, gloves, pottery, watches and clocks, and tobacco and snuff are representative manufactures. The output of the breweries (177) in 1906 was 2,392,693 hectolitres. The sale of alcohol, etc., amounted in 1907-8 to 58,657 metric quintals of liquors for use as beverages and 61,875 for industrial purposes. The output of salt (1906) was 576,223 quintals; of cement, 535,841 metric tons. The number of cotton spindles in operation March 1, 1909, was 1,493,012.

COMMERCE. The special trade for three years is given in francs in the table on the following page.

Germany contributed imports valued at 512,702,000 francs, and received exports to the sum of 239,881,000; France, 283,577,000 and 117,211,000; Italy, 171,852,000 and 92,185,000; Austria-Hungary, 98,835,000 and 64,954,000; Great Britain, 87,012,000 and 178,538,000; United States, 60,660,000 and 111,796,000; Russia, 49,576,000 and 32,814,000; Belgium, 31,554,000 and 18,552,000; Rumania, 28,591,000 and 6,786,000. Russia and Rumania supply a large part of the wheat import; cattle come from Italy, Austria-Hungary and France; flour (about two-thirds) from Germany, and sugar from France, Germany, and Austria-Hungary.

COMMUNICATIONS. The total length of railways in 1908 was 3170 miles. Four of the main lines (1538 miles) have been taken over by the state, and a fifth, the St. Gothard, was

Imports:	1906	1907	1908
Merchandise	1,469,059,498	1,687,426,688	1,487,149,157
Precious metals (money)	86,134,934	48,745,803	46,827,446
Total	1,554,194,432	1,736,172,491	1,533,976,603
Exports:			
Merchandise	1,074,868,562	1,152,938,259	1,038,437,322
Precious metals (money)	28,490,899	36,041,858	21,365,553
Total	1,103,359,461	1,188,980,117	1,059,802,875

to be acquired by April, 1909. In 1907 there were 5523 miles of telegraph lines, with 27,316 miles of wires; 10,913 miles of telephone lines, with 180,840 of wires. There were (1908) 1823 post-offices.

FINANCE. The unit of value is the franc, worth 19.3 cents. The revenue and expenditure are given for four years in francs as follows (1909 budget):

	1906	1907
Revenue.....	133,395,482	145,914,260
Expenditure.....	128,556,873	139,310,086

	1908	1909
Revenue.....	147,391,123	149,070,000
Expenditure.....	150,879,386	154,400,000

The main sources of revenue and the chief items of expenditure were estimated in 1909 as follows: Revenue—Customs, 69,942,000 francs; posts, 53,443,500; telegraphs, 14,863,700; from state property, capital invested, etc., 5,202,619; military, 3,898,140; commerce, agriculture, industry 677,750; railways, 123,650. Expenditure—Posts, 52,683,200 francs; war, 40,192,344; interior, 16,165,508; telegraphs, 14,863,700; commerce, etc., 11,946,870; debt interest, amortization, administration, etc., 7,670,825; customs, 7,528,050; railways, 527,300. The total public debt amounted, January 1, 1909, to 100,908,317 francs.

Of the 36 banks of issue existent in 1906, 11 had waived their right of emission December 31, 1908. Those remaining had paid-up capital amounting to 203,042,500 francs; average note circulation, 98,831,537. The National Bank, which commenced operations June 20, 1907, will ultimately be the only bank of issue.

ARMY. The army is a national militia in which service is universal and compulsory between the ages of 17 and 49, with few exemptions except for physical disability, and those who are excused or rejected pay certain taxes. Upon entering the service the recruit goes to the Auszug or Élite, where he spends 13 years (10 years for cavalry), with annual periods of service. Twelve years is spent in the Landwehr, where there is one training of 11 days, and six in the Landsturm, which is divided into "armed" and "unarmed" branches, the former being annually inspected and containing in addition to those coming from the Auszug and Landwehr all those able to bear arms but who have not been trained. The "unarmed" division comprises those available as non-combatants. The Auszug comprised 106 battalions of infantry, aggregating 95,469 men, 36 squadrons of cavalry with four main gun companies amounting to 5083. There were 78 field and

mountain batteries, 12 companies of fortress artillery and 10 foot companies, aggregating 17,913 men, and engineers and technical troops to the number of 5388. These various service and administrative divisions brought the total for the Auszug to 136,661 men. The Landwehr comprised 36 battalions of infantry, amounting to 46,337; 36 squadrons of cavalry, numbering 3890; 6595 artillery, 2501 engineers and technical troops, and other organizations, bringing the total up to 68,113, so that the total peace effective of the Swiss army in 1909 was 206,325. In the Swiss army there has been a gradual decrease in strength, due in part to increased strictness in the examination of recruits. Thus the effective strength has gradually fallen from 151,766 in 1901 to 138,798 in 1909. During that time the cavalry has increased from 4641 to 5113 men and the supply of remounts has been extended and better organized. A total of 74,825 horses, 18,511 heavy draft horses, and 2231 mules for mountain services were registered. The Landsturm, in which service was being shortened in pursuance of the law of 1907 increasing the length of the earlier periods, was organized in its armed division into 96 battalions of from 3 to 6 companies, with an effective strength of 54,067 men. In addition to infantry, other branches of the service were represented, and in 1909 it was decided to include mounted troops. The strength of the Landsturm in 1909 was estimated at 300,000.

GOVERNMENT. The executive authority is vested in a federal council of seven members, elected for three years by the National Assembly, and presided over by the President of the Confederation, who, with the Vice-President, is elected for one year by the Assembly from among the members of the Council. The legislative power resides in the National Assembly, consisting of two Chambers—the National Council, of 167 members, popularly elected, and the Council of State, of 44 members, chosen by the cantons. Within its boundaries each canton is sovereign, excepting for the restrictions imposed upon all by the Federal Constitution. President (January 1 to December 31, 1909), Dr. A. Deucher; Vice-President, R. Comtesse. The heads of departments (1909) were: Interior, M. E. Ruchet; War, E. Müller; Justice and Police, Dr. E. Brenner; Commerce, Industry and Agriculture, J. A. Schobinger; Posts and Railways, Dr. L. Forrer.

HISTORY. Criticism of the present electoral system—*scrutin de liste* and absolute majorities—was renewed after the elections of October 25, 1908, and the movement for proportional representation was revived. In these elections 147 of the 165 deputies were reelected to the National Council. Only two of the old members failed of reelection, the other changes being due to deaths or resignations. The same

mechanical uniformity was shown in the elections to the Federal Council. Thus representation did not conform to the actual state of political parties and any party not able to control a majority was forced into incongruous alliances, as for example, at Zurich, where Radicals, Liberals and Conservatives united against Socialists; at Bern, where Radicals and Conservatives did the same, and in the Canton of Thurgau and St. Gall, where Catholics, Conservatives, Socialists and Democrats united against Radicals. These points had been often urged against the system by the advocates of proportional representation. In 1900 the question of proportional representation had been submitted to popular vote and failed by a large majority, but its champions now believed that public opinion had changed. On January 10, 1909, at a meeting at Zurich it was decided to begin at once to secure the necessary 50,000 signatures for the referendum. The Radicals being strongly intrenched, it was necessary that the other parties should present a united front. The Catholics, however, seemed uncertain or even hostile; so success was doubtful.

The 400th anniversary of Calvin's birth was celebrated at Geneva on July 10. A serious crisis in the watch trade was reported in September. It was attributed to the British patent laws, the American tariff, the competition of the recently opened foreign factories, and the money stringency among the well-to-do classes. Early in November the budget estimates were submitted: Receipts estimated at 154,130,000 francs; expenditures at 159,450,000 francs; deficit, 5,320,000 francs.

SYNGE, JOHN MILLINGTON. An Irish dramatist and poet, died March 24, 1909. He was born in Dublin, in 1871, and was educated at Trinity College. He came under the influence of W. B. Yeats, and joined with him in the movement for the revival of the ancient Irish language and drama. With Yeats and Lady Gregory he was identified with the conduct of the Abbey Theatre in Dublin, the idea of which has been the establishment of a national drama. Synge's first plays, *Riders to the Sea* and *The Shadow of the Glen*, were produced in 1905. They at once established his reputation as a dramatist of a high order. In the same year he wrote *The Veil of the Saints*. Perhaps his most remarkable work was *The Playboy of the Western World*. This was produced at the Abbey Theatre in 1906. The first performance ended in a riot, and for a long time afterwards discussions concerning it occupied the Irish press. In 1908 he published *The Tinker's Wedding*, and at the time of his death was engaged on another Irish play called *Deirdre*. Synge was considered by many the first of the group of young Irish poets. He possessed great imagination and a rare delicacy of style. His sharp attacks on Irish institutions and conventions provoked bitter resentment in some political and religious quarters.

SYRACUSE UNIVERSITY. An institution of higher learning, at Syracuse, N. Y., founded in 1870. The attendance in 1909 was 3201, with 239 members of the faculty. There were in the library 78,321 bound volumes, and 23,977 unbound. During the year gifts were received to the value of \$136,711. Among the changes in the faculty were the resignations of Edwin L. Earp, professor of sociology, and Earl

E. Sperry, professor of history. The former was succeeded by Philip Parsons, and the latter by J. W. Wrench and E. P. Tanner. M. W. Blackman was appointed to the department of zoölogy, and Warren Hilditch to the department of chemistry. Professor Lisgar Eckhart was appointed to the department of philosophy, and Harold H. Brown to the department of chemistry. The productive funds of the college amount to about \$1,650,000, and the total income to about \$1,110,000. The chancellor is Rev. J. R. Day, LL. D.

SYRIA AND PALESTINE, EXCAVATIONS IN. See ARCHÆOLOGY.

TABB, JOHN BANNISTER. An American Roman Catholic priest, and educator and a poet of exceptional lyric powers, died November 19, 1909. He was born in Amelia county, Virginia, in 1845, and served through the Civil War in the Southern navy, becoming in 1864 a prisoner of war. He studied music in Baltimore and taught in St. Paul's School in that city, and in Racine College, Michigan. In 1872 he became a Roman Catholic, and in 1872-4, he was a student at St. Charles College, Maryland, and instructor of English there in 1875, and at various other periods to the time of his death. In the last months of his life his eyesight failed and he became entirely blind. He was the author of *Poems; Lyrics; An Octave to Mary; Rules of English Grammar; Poems Grave and Gay*, 1899; *Two Lyrics*, 1900; *Quips and Quiddities*, 1907.

TAFT, WILLIAM HOWARD. Inaugurated twenty-seventh President of the United States, on March 4, 1909. The chief events dealing with his administration will be found in the article UNITED STATES, under *Administration, Foreign Relations*, and other titles, and in general in the articles throughout the work dealing with the political history of the United States. He was born in Cincinnati, September 5, 1857, the son of Alphonso Taft, who, after having held many important judicial offices, was Secretary of War in 1876, and United States Minister to Austria-Hungary, 1883-5, and to Russia in 1885. William Howard Taft was educated in the public schools of Cincinnati and at Yale University, where he graduated in 1878. He was admitted to the bar of the Supreme Court of Ohio in May, 1880, and in the same year acted as law reporter to the Cincinnati Times. He was appointed assistant prosecuting attorney in January, 1881, and resigned in March, 1882, to become Collector of Internal Revenue for the first district of Ohio, under President Arthur. This office he resigned in 1883 to enter the practice of law, at which he continued until March, 1887. In that month and year he was appointed by Governor Foraker Judge of the Superior Court of Cincinnati, and in April, 1888, he was elected to succeed himself in this court. He resigned in February, 1890, to become Solicitor-General of the United States under the appointment of President Harrison, and from this office in turn he resigned in March, 1892, to become Judge of the United States Court for the sixth judicial circuit. In 1896 he became professor and dean of the law department of the University of Cincinnati. He resigned in March, 1900, the circuit judgeship and the deanship, and became by the appointment of President McKinley, president of the United States

Philippine Commission, and on July 4, 1901, he became the first civil governor of the Philippine Islands. After a brilliant administration of this post, he was appointed Secretary of War, taking office February 1, 1904. While in this office he visited Panama, the Philippine Islands and Cuba, in his official capacity, and succeeded in ameliorating unfavorable conditions which prevailed in those countries. He was nominated for President at the Republican National Convention on June 16, 1908, by 702 out of the total of 980 votes, and in the election which followed he defeated William J. Bryan by a popular vote of 7,811,143 to 6,328,601, and by an electoral vote of 321 to 162.

TALCOTT, ALFRED BISSELL. An American journalist and lecturer, died November 22, 1909. He was born at Glastonbury, Conn., in 1825. He became interested in electrical development in Boston in 1843, and was afterwards engaged in electrical work in New York. He took part in rebuilding the old telegraph lines between New York and Washington, and in 1859 went to Washington as manager of a telegraph company. In 1862 he became a war correspondent for the New York *Herald*, and reported the engagement between the *Monitor* and *Merrimac*. He is said to have operated the first field telegraph line used in the Civil War. He was connected with newspapers in Washington for many years after the war, and in 1892 became electrician of the House of Representatives.

TARIFF. During the latter half of the second Roosevelt administration, sentiment in the Republican party in favor of a revision of the tariff appeared very strong, especially in the Middle West. Even the advocates of extreme protection admitted that in the decade since the Dingley law went into effect, business conditions had changed so radically that revision of many of the tariff schedules had become imperative. A pledge of tariff revision was embodied in the Republican national platform of 1908, and the leaders of that party reached an agreement that the work of revision should be carried out in a special session of Congress to be called immediately after the inauguration of President Taft. In anticipation of this special session, and for the purpose of expediting the business of revision, the Ways and Means Committee held hearings on the tariff through the months of November and December, 1908, and collected an immense mass of testimony from representatives of the protected interests, from importers and other persons likely to be affected by the revision of schedules. Upon the basis of such information, a tentative bill was drafted by the Ways and Means Committee before the close of the regular session.

The schedules of the Dingley act that were generally believed to be most in need of revision were those relating to iron and steel and their manufactures; wood pulp and paper; sugar; hides and leather and leather manufactures; lumber; and petroleum. In all these cases powerful combinations had grown up under the shelter of the tariff; and the demand for tariff revision was in large measure reinforced by the demand for a more efficacious remedy for the evils of combination than that afforded by the Federal and State Anti-Trust laws. Very little attention was bestowed upon the textile schedules; it was generally believed that some

of the textile duties were too high; but that equalization, rather than reduction, of duties was desirable. It was anticipated that very marked reductions would be made in many items of other schedules, such as chemicals, glass and earthenware, and that the tendency of revision would be in the direction of freer trade.

The work of revision was first undertaken by the House, immediately upon the reassembling of Congress in special session. A bill was reported by Mr. Payne, Chairman of the Ways and Means Committee, and was passed after prolonged debate on April 9. This bill, which served as a basis for the act of 1909, placed iron ore on the free list, and made material reductions on iron and steel and their manufactures; on chemicals, coal, hides and lumber. Petroleum and its products were placed on the free list. A considerable number of the textile duties were increased, and the duties on gloves and hosiery were advanced so materially as to occasion vigorous opposition, especially in the Middle West. The bill provided for free trade with the Philippines, with a limitation, however, upon the amounts of sugar and tobacco that might enter the ports of the United States duty free. The bill also provided for the adoption of a system of maximum and minimum duties, to be employed as a means for compelling commercial concessions on the part of foreign countries. In principle, the minimum duties were to be fixed at a level giving satisfactory protection, while the maximum duties were to represent an addition of 20 to 25 per cent. to the minimum duties.

On April 12 a substitute measure, known as the Aldrich bill, was reported in the Senate. This bill made even fewer concessions to the revision sentiment than did the Payne bill. It presented a new schedule of silk and its manufactures, substituting specific duties generally for the *ad valorem* duties of the Dingley law. The cottons schedule was also thoroughly revised, on the same principle. In both cases very few reductions in duty were made, and numerous advances were in evidence. Iron ore, which had been placed on the free list in the House bill, was given a duty of 25 cents a ton; the rates on rough lumber were fifty per cent. higher than in the House bill; the countervailing rates of the Dingley law on petroleum and its products, which had given these products a high degree of protection, were retained. The excesses of the House bill in the items of gloves and hosiery were avoided, but the Senate bill, as a whole, offered a decidedly smaller concession to the revisionists than did the House bill. As a consequence of the extreme character of the bill, a powerful group of Republican Senators from the Middle West, known as the "insurgents," carried on a vigorous campaign against it. The bill was nevertheless forced to passage on July 8.

On July 12 the Conference Committee took up the tariff project. The measure prepared by the committee was in the nature of a compromise, but largely through the influence of President Taft the more moderate provisions of the House bill were reflected in the compromise bill. This bill was reported to the two Houses on July 29, and was promptly passed by the House. In the Senate the measure was attacked vigorously by the insurgents, but it was passed unamended on August 5, and on the same day received the President's signature.

This act, popularly known as the Payne-Aldrich law, is officially designated as "An Act to Provide Revenue, Equalize Duties, and Encourage the Industries of the United States, and for other Purposes."

The tariff schedules materially affected by the new law are: Metals and manufactures thereof; cotton manufactures; silk and silk manufactures; chemicals, oils and paints; lumber; paper pulp and paper; hides and leather and leather products.

In the metal schedules the general tendency is in the direction of lower duties. Iron ore was reduced from 40 cents per ton under the Dingley law to 15 cents under the Payne-Aldrich law. Pig iron was reduced from \$4 per ton to \$2.50; scrap iron, from \$4 to \$1. Steel rails were reduced from \$7.84 per ton to \$3.92. Structural steel received a nominal reduction from \$10 to \$6 and \$8; but punched structural steel—the only form ready for use without further manufacture—was given a duty representing 40 per cent. in excess of the Dingley rate. The cheaper forms of boiler plate received a reduction in duty of 40 per cent. Steel ingots and similar products, valued at less than 24 cents per pound, received a reduction in duty of 2 per cent.; those valued at over 24 cents per pound received advances in duty ranging from 28 to 70 per cent. Iron and steel wire of the lower grades, which had been dutiable at 1½ cents per pound, was reduced to one cent. The rates on many classes of cutlery were materially advanced. Common razors, unfinished, received an advance amounting to 220 per cent. of the old rate. Finished razors, valued at \$1 to \$1.50 per dozen, received an advance of 65 per cent. The duty on nickel and its alloys was advanced from 35 per cent. *ad valorem* to 50 per cent. Zinc ore, which had been free, was made dutiable at one cent per pound of zinc content.

The cottons schedule was subjected to more thoroughgoing revision than any other. In this schedule specific rates were largely substituted for the *ad valorem* rates of the Dingley law, and an elaborate scheme of classification according to weight, number of threads and value was adopted. The effect of the revision is practically to retain the Dingley rates on the lowest grades of cotton fabrics, and to advance duties progressively on the higher grades. Cotton cloth, bleached, counting not over 100 threads to the square inch and valued at nine cents a yard or less, retained the Dingley rate; valued at nine to eleven cents, it takes a rate 22 per cent. in excess of the Dingley rate; valued at eleven to twelve cents, a 45 per cent. increase in rate; valued at twelve to fifteen cents, a 67 per cent. increase; valued at fifteen to sixteen cents, a 60 per cent. increase; valued at sixteen to twenty-five cents, a 75 per cent. increase. Similar discriminations in favor of the higher grade goods appear throughout the cottons schedule, and are explainable on the ground that the American manufacturer meets with foreign competition only in goods of the higher grades. The most remarkable feature of the cottons schedule is the heavy increase in the duties on mercerized cloth. All grades of mercerized cloth received an advance in duty ranging from 12 to 100 per cent., and comparatively few grades were advanced less than 30 per cent. The duties on cotton hosiery were advanced 33 per cent. on the lower grades and 22 per cent.

on the higher, reflecting the fact that foreign competition is more severe in the cheaper grades than in the dearer.

In the silk schedule a large number of *ad valorem* duties are replaced by specific duties; most of the changes represent an advance. No general principle is discernible in the revision of this schedule; in some cases the cheaper grades are subjected to the greater advances, in other cases the dearer grades. Woven fabrics dyed in the thread and containing less than 30 per cent. of silk received an increase of duty amounting to 79 per cent. of the Dingley rates; similar fabrics containing 30 to 45 per cent. of silk received an increase of 45 per cent.; fabrics containing 45 per cent. of silk and over received no increase whatever.

In the chemicals schedule the most noteworthy item is petroleum and its products, which is placed on the free list. These products had received protection amounting to virtually 100 per cent. *ad valorem* under the countervailing provision of the Dingley law. Sulphur was reduced from \$8 per ton to \$4; borax from 5 cents per pound to 2 cents; bicarbonate of soda from ¾ of a cent per pound to ½ of a cent. Crude barytes were advanced from 75 cents per ton to \$1.50 per ton, and many other materials for the manufacture of paint were advanced. The general effect of the new law is slightly to increase the duty on chemicals.

The duties on unfinished lumber, which had ranged from \$1 to \$2 per thousand board feet, under the Dingley law, are cut to 50 cents and \$1.25. The differential applied to finished lumber under the Dingley law was cut by about 25 per cent. The only important increase in the lumber schedule was shingles, raised from 30 cents per thousand to 50 cents.

Mechanically ground wood pulp is placed on the free list, but the old duties are retained on chemical wood pulp, with an additional countervailing duty to offset any export duty levied by the country of origin. The lower grades of print paper are reduced from \$6 per ton to \$3.75. The higher grades of paper, on the other hand, were given advances ranging from 10 to 25 per cent. of the old duties.

Hides, which had been given a duty of 15 per cent. under the Dingley act, are placed on the free list; leather is reduced from 20 per cent. *ad valorem* to 15 per cent.; shoes, from 35 per cent. to 20 per cent.

Among the items not entering into the schedules discussed above, and affected materially by the new law, are coal, reduced from 67 cents per ton to 45 cents, and works of art that have been in existence more than twenty years prior to the date of importation, which are placed on the free list by the new law. Cables and cordage, threads and twines, are given reductions amounting to about 25 per cent. of the Dingley rates. The duties on fresh meats are reduced from 2 cents per pound to 1½ cents.

During the discussion of the bill in Congress much popular attention was given to the question whether the new law represented a general decrease or a general increase in duties. This question never received a wholly satisfactory answer, and in the nature of the case, admits of none, for the present. Reductions in duty were more numerous than advances, but many of the reductions affected commodities of trifling importance. In many other cases the reductions are of no practical significance,

since the remaining duties are sufficient to exclude foreign competition. Thus the reduction in the duties on fresh meats can be of little practical significance, since the dressed meat industry can meet with no effective foreign competition. The reductions in the metals schedule are not drastic enough to impair the domestic producers' control of the home market. The reductions in the leather and the boot and shoe duties appear to be of no practical significance, since the manufacture of most grades of these goods has attained to a stage of development in which prices are fixed quite without regard to the tariff. The advances in the textiles schedules, on the other hand, are calculated to have a decided influence upon foreign competition. The most careful estimates of the probable revenue to be derived from the new law indicate a slight increase, even without an increase in volume of importations, and this would appear to justify the view that the new law represents a slight advance in duties.

In an endeavor to show that the tendency of the new law is toward a reduction in the cost of living, supporters of the law have laid stress upon the relative quantities of goods affected by a reduction of duties and of those affected by an increase of duties consumed by the American people. The whole volume of goods, whether of domestic or of foreign origin, enters into the computation. From this point of view it appears that the new law should materially reduce the cost of living. When, however, it is borne in mind that many of the reductions represent merely the removal of parts of the earlier duties that were ineffective, because excessive, it will be seen that no reduction in prices can be anticipated from them. It can not be supposed that the whole volume of fresh meat, of iron and steel, of petroleum and its products, will be reduced in price in consequence of the revision of schedules.

In some small measure the new law represents a movement in the direction of freer trade in the materials of manufacture. This is the case in the placing of hides, iron ore, and mechanical wood pulp upon the free list; in the reduction of duties on leather, rough lumber, coal, sulphur, and bicarbonate of soda.

The new act provides for free importation into the United States of all products grown in the Philippine Islands, and all manufactures of the Philippine Islands from materials more than 20 per cent. in value of which have been produced in the Philippine Islands or in the United States. Exceptions are made, however, of rice, sugar and tobacco. In the case of sugar an amount not in excess of 300,000 tons yearly may be imported duty free into the United States; in the case of tobacco an amount not in excess of 300,000 pounds of wrapper, 1,000,000 pounds of fibre and 150,000,000 cigars, yearly, may likewise be imported into the United States duty free. These amounts are greatly in excess of the amounts that would be likely to be offered for export in the Philippines; hence the measure grants effective free importation from the Philippines of all products except rice. In anticipation of a possible development of the sugar industry in the Philippines, it is provided that when more than the maximum amount is offered for export, preference in the right of free entry shall be given to the smaller producers. In consideration of the favorable treatment accorded to Philippine

products the law stipulates that all products of the United States shall enter the Philippines duty free. It is also provided that Philippine products that seek free entry into the United States shall pay no export duty in the Philippine Islands.

A novel feature of the act is the adoption of the principle of maximum and minimum tariffs as a means for compelling commercial concessions from other countries. The minimum tariff is constituted by the schedules described above; the maximum tariff is constituted by adding 25 per cent. to every duty in the dutiable list. The maximum tariff, in the absence of commercial agreements, is applicable to the products of all foreign countries; and the President was required by the act to give notice to all countries that had entered upon agreements with the United States of the termination of such agreements at the expiration of the period of notice fixed in the agreements; or, in case no period of notice had been incorporated in such agreements, they were required to be terminated on April 30, 1910. The President is authorized, however, when satisfied that any country, dependency or colony imposes no restrictions upon importations from the United States that unduly discriminate against the United States, and leaves no export duties that are unduly discriminatory against the United States, to extend to that country, dependency or colony the privileges of the minimum tariff of the United States. As in the case of the Dingley law, the new act levies countervailing duties upon products receiving export bounties in the country of origin. These countervailing duties are calculated to equal the export bounties, and the Secretary of the Treasury is required to ascertain and declare, from time to time, the amount of such bounties.

A special commercial provision of the act levies a countervailing duty upon paper pulp and paper which pays an export duty in the country of origin. The countervailing duty is to be equal to the export duty. This provision of the act is obviously directed against an established principle of Canadian commercial policy, and, in effect, represents an advance in duties on the products affected.

The provisions of the act relating to the application of the minimum and maximum tariffs evidently place upon the President a large burden of responsibility, since he is required to ascertain, not merely whether the several foreign countries discriminate against the products of the United States—which, indeed, many of them do—but also whether such discrimination is inherently unreasonable. Further, the discretion vested in the President necessitates his consideration of the consequences that would be likely to follow from the employment of the maximum tariff against any country. A large amount of technical information must, therefore, be placed at his disposal; and the President is authorized by the law to "employ such persons as may be required" to this end. In accordance with this provision of the law President Taft in September, 1909, appointed a commission of three experts, popularly known as a "tariff board," and in popular belief, endowed with the powers of a permanent tariff commission—a proposed adjunct of the legislative service widely advocated in recent years. The members of the board of experts appointed were Professor

Henry C. Emery and Messrs. Alvin Sanders and James B. Reynolds.

An important change in customs administration appears in the creation of a Court of Customs Appeals. The act provides that this court shall consist of a presiding judge and four associate judges, appointed by the President with the advice and consent of the Senate. Appeals from the decisions of the appraisers, whether as to the facts or as to the interpretation of the law, which prior to the enactment of the Payne-Aldrich law could be made to the Circuit Courts and thence to the Supreme Court, must, after the organization of the Court of Customs Appeals, be made to that court, and no appeal from its decisions is permitted. The action of Congress in creating this court was largely due to the belief of many of the supporters of the policy of protection that the Dingley act had lost part of its force through unfavorable judicial interpretation.

The revenues anticipated under the new act are slightly in excess of those produced by the Dingley act; but entirely insufficient to meet the deficits that were predicted if the latter act had remained in force. In order to provide additional revenues, it was proposed by Senators and Congressmen of both parties to enact an income tax essentially of the same character as the act that had been enacted in 1894 and later declared unconstitutional by the Supreme Court. President Taft urged, in lieu of this, a resolution submitting to the States the question of conferring upon the Federal government the right to levy a tax upon incomes, and for present fiscal needs, a tax upon the net incomes of corporations. It was pointed out that the latter tax would not only be an efficient revenue producer, but would also go far toward introducing publicity in corporation affairs. The President's plan prevailed, and an excess tax upon corporations was incorporated in the tariff law. All corporations, associations and joint-stock companies, having a share capital, and all insurance companies are required to pay a tax of one per cent. on all income in excess of \$5000, exclusive of income derived from the shares of stock in corporations subject to the tax. "Net income," in the meaning of the act, is found by deducting from gross income all ordinary and necessary expenses, all rentals and payments for franchises, all losses not compensated by insurance and a reasonable allowance for depreciation of property, and interest on bonded or other indebtedness to an amount not exceeding the paid up capital stock. Great uncertainty prevails as to the amount of revenue that this measure will produce, but estimates vary from \$20,000,000 to \$30,000,000. The feature of the law that has excited greatest opposition from business interests is the degree of publicity entailed by it, since all the details of the business of a corporation may be examined by the officers of the government in their attempt to ascertain net revenue.

CANADA. Among the tariff matters before the Canadian people and government, was the policy of preference for English goods. From 1900 to 1904, full preference of one-third in the import duties had been extended, and since then the Canadian Manufacturers' Association has steadily fought the small preference still retained. This Association with its 2400 members, includes about 90 per cent. of Canadian

manufacturers, and has tremendous political prestige. On the other hand the feeling was strong that Canada should not allow other nations, by maximum and minimum tariffs, to force her to abandon preference for British imports.

Another matter of importance was the negotiation of a trade convention with France. The Canadian tariff has three levels of rates, the general tariff, the intermediate tariff, with rates 5 to 10 per cent. lower, and the British preferential rates. The intermediate tariff was expected to serve as a basis for reciprocal trade concessions with other countries. The French tariff has two levels of rates (see below). In April the French Senate approved a treaty whereby the French minimum rates were conceded to Canadian goods, in exchange for the intermediate rates into Canada. This treaty would have been readily approved by the Dominion Parliament, had it not been for the passage of the Payne-Aldrich tariff by Congress, with its maximum and minimum schedules. It was feared that the United States would demand the same treatment as France. Moreover, approval of the French treaty would, under existing British treaties, give equal concessions on the part of Canada to Argentina, Bolivia, Colombia, Venezuela, Japan, Denmark, Russia, Spain, Austria-Hungary, Norway and Sweden. While the Canadian manufacturers believed themselves to be in a strong position for a tariff war with the United States, they were strenuously opposed to any lowering of rates on goods from that country, or to higher rates into that country. In spite of the insistent demands that approval of the treaty be withheld until the attitude of the Washington government could be learned, the treaty was ratified near the close of the year.

Upon both of the above matters, therefore, the Canadian officials and manufacturers were in a state of doubt at the close of the year. As the Payne-Aldrich law was finally approved, it contained the provision that the President shall have discretion of treating "any dependency, colony, or other political subdivision having authority to adopt and enforce tariff legislation," as a separate fiscal body. This was substituted for a provision in the original bill which expressly excluded preference between a mother country and a colony from consideration in the application of the maximum and minimum rates. Under the law the President had until April 1, 1910, to decide whether British preference or the French treaty constitute sufficient discrimination to warrant the imposition of the penalties provided by the Payne-Aldrich law.

The paper pulp duties also occasioned much discussion. The Dominion government exercises no authority over the wood pulp industry, this being left to the provinces of Ontario and Quebec. Both provinces aim to restrict the exportation of pulp, and to force the development of paper mills in their territory by placing a heavy export tax on wood pulp cut from Crown lands. Under the new tariff, the Washington authorities imposed retaliatory import duties, raising the rate on paper and pulpwood from \$3.75 to \$6.10 per ton. Should the maximum rate of \$15.60 per ton be imposed April 1, 1910, it would be prohibitive. On mechanically ground wood pulp, the present rate is \$2.00 per

ton when cut from Crown lands, otherwise free. The maximum rates would be from \$4.00 to \$4.50 per ton higher.

ENGLAND. During the course of the year the subject of import duties of a protective nature became an important political issue. At the Colonial Conference of 1907, the proposals of Mr. Chamberlain for reciprocal favors between Great Britain and her colonies had been a chief topic of discussion. It was there shown that the bonds of the empire could be strengthened in this way, only by the abandonment of the free trade policy by the mother country, and the substitution of a protective tariff, with preferential rates for the colonies. This subject led to the Tariff Commission, which made extensive and intensive inquiries into various industries. In addition to the numerous reports and memoranda issued in 1908, this Commission has issued a volume on the engineering industries, and a memorandum showing the course of the export trade in leading manufactures of England, Germany and the United States, under a number of different comparisons. The study of the engineering trades covers every phase, including home products, competing foreign goods in both the home and foreign markets, effects of foreign tariffs, employment and suggested remedial measures.

But it was not until after the introduction of the government's Finance Bill, in April, that the tariff became an issue of first importance. It had been foreseen that the government must provide additional sources of revenue in order to support its old-age pension scheme, and to carry on the naval construction made necessary by Germany's rapid naval expansion. It was expected by some that this needed revenue might be secured by a system of import duties. When, however, the Liberal government brought in a budget levying new internal taxes with far-reaching social reforms, the Conservatives at once joined the issue of tariff reform against free trade and a socialistic budget. Tariff reform leagues were formed in various parts of the country, and, under the leadership of Mr. Balfour, an active propaganda was begun and continued to the close of the year.

The argument on one side consisted largely of a restatement of the historic arguments for free trade, and appeals to the time-honored ideals of Cobden. It was also argued that England could not use a tariff to retaliate upon nations already committed to the protective policy, for these latter would be more likely to raise rates higher than to reduce them. The argument, familiar in America, that a tariff takes from consumers much more than is paid into the public treasury was also advanced.

The tariff reform arguments were numerous. Most frequent perhaps was the contention that a tariff was needed to retaliate against discriminating rates in other countries and to force other countries to grant more favorable trade conditions. Some held a tariff to be necessary to secure funds for the maintenance of the two-power standard for the navy. Others contended for it as a part of a wise and comprehensive Imperial policy, aiming to conserve the trade and defenses of the British Empire, make it invulnerable from attack and give the greatest wealth and vitality to the English people. Average wages in Great Britain and in the United States were compared to the great dis-

advantage of the British workman. The decline of English agriculture was strongly emphasized, it being shown that there were a million fewer persons in that industry in 1901 than in 1851. In this connection it was pointed out that there were almost 1,250,000 permanent paupers in Great Britain and Ireland, and about 2,000,000 other persons who occasionally were forced into a state of pauperism; that about 40 per cent. of the working population received less than five dollars (20 shillings) per week; and that the extent of unemployment was appalling. It was declared that England's markets being free, English wages were forced down to the level of her cheapest competition. It was shown that foreign countries were determining the character and scope of English industries, for, by the imposition of tariffs, rival industries had been built up in those countries with which English merchants had formerly traded, England's market had been restricted and her manufactures crippled. Moreover the policy of dumping carried on by large producers in protected countries rendered English trade precarious and uncertain. This latter condition, it was held, was forcing English capital to migrate to protected countries, while the best workmen likewise migrated, leaving the others to find whatever casual labor they could.

FRANCE. Early in the year the Customs Committee of the Chamber of Deputies brought in proposals for numerous changes in the tariff rates. The French import duties are classed under two headings. The general tariff, which is regarded as a weapon to force favorable terms from other countries, and the minimum tariff, the difference in the rates of the two schedules being about 50 per cent. The committee's proposals involved increases under 866 headings and reductions under two headings of the general tariff, and increases on 182 classes of imports under the minimum tariff. These proposals were taken up in the Council of Ministers in February. Great opposition developed owing to the highly protectionist spirit of the proposed changes. Protest from Switzerland, Germany and England was especially strong, and members of the government interposed serious objections to any legislation that would disrupt trade conventions and lead to tariff wars. It was largely on these grounds that the government decided very early to reject the proposals in so far as they related to articles mentioned in the Franco-Swiss Commercial Treaty. The revision was taken up in the Chamber of Deputies on June 15. In the debates that followed the examples of Germany and the United States and the existing conditions in England were frequently cited. The Socialists protested against an important piece of legislation which was not introduced by the government and which the people, and particularly the workmen, had not passed judgment upon. Early in July the Minister of Commerce stated the government's position to be opposed to wholesale revision. He suggested the organization of a permanent bureau to deal with tariff problems largely on the ground that tariff wars would lead to commercial ruin. Somewhat later M. Jaurès, the socialist leader, moved, and the Chamber voted, request the government to promote an international conference with a view to a gradual simultaneous reduction of tariffs. Upon the opening of the fall session in October the

bate was renewed, the schedules being taken up in detail. The completed bill was then approved by a vote of 465 to 42 on December 29, and the measure sent to the Senate. See above in this article under *Canada* for trade treaty.

TASMANIA. An island state of the Australian Commonwealth. Area, 26,215 square miles. Estimated population (Dec. 31, 1908), 185,824. Capital, Hobart, with (including suburbs) 44,610 inhabitants. The executive authority is vested in a governor appointed by the Crown and assisted by a responsible ministry. The Parliament consists of the Legislative Council (18 members, elected for six years), and the House of Assembly (35 members, elected for three years). Both men and women vote. The Governor in 1909 was Maj. Gen. Sir Harry Barron; the Premier and Treasurer, Sir Neil Elliott Lewis. For statistics and other details, see *AUSTRALIA*.

The new Ministry under Sir N. E. Lewis, Premier and Treasurer, was temporarily overthrown on October 21, having encountered an adverse vote on its tax proposals, but the Labor Ministry then formed (under Mr. Earle as Premier), lasted only a week. The Anti-Socialist forces re-united and defeated the Labor Ministry by a majority of six, whereupon the Lewis government returned to power.

TAX PAYERS' LEAGUE. See *ELECTORAL REFORM*.

TEACHERS' SALARIES. See *EDUCATION IN THE UNITED STATES*.

TELEGRAPHY. Wire telegraphy has undergone no radical technical development in 1909. The extended employment of the high-speed printing equipment brought out in recent years shows it to be firmly established. European tests of the Pollak-Virag system over distances as high as 450 miles developed a speed of 45,000 words per hour. A vibratory system of multiple telegraphy has been given successful preliminary trials in France. Messages are transmitted by vibratory currents furnished by tuning forks of various frequencies and are selected out by resonators at the receiving station. A 500-mile line has been successfully operated with as many as eighteen simultaneous messages. Submarine cable work has been forwarded by the introduction of a quadruplex system which minimizes the retarding effect of the cable's capacity. A sine wave working current is employed in connection with auxiliary electromagnets which serve to quicken the action of the neutral relay and hold it steady during the reversals of the current.

The union of the leading telegraph and long distance interests constituted the most important commercial development of the year. The telegraph systems of America comprise more than 16,000,000 miles of single wire and about 8,000 miles of ocean cable, representing an investment of approximately \$250,000,000.

TELEGRAPHY, WIRELESS. See *WIRELESS TELEGRAPHY*.

TELEPHONY. The record of telephony for 1909 shows no exceptional developments in methods and equipment. The favorable state of the market led to a large amount of construction work. Long distance service has been much improved by the extensive connection of local and independent exchanges. Early in the

year a clearing company was organized among the independent interests for the promotion of long distance traffic. This company issues coupon books good for long distance service over 360,000 miles of line in the Eastern and Central States. The union of the leading American telegraph and long distance telephone interests overshadows all other commercial developments. Economies and improvements in service may be confidently expected from the joint operation of the circuits.

Much study has been devoted to the interference of high voltage power transmission circuits with long distance telephony and some new and highly effective remedies have been developed. Such problems as this, together with the increasing tendency to employ underground circuits, tend to make it increasingly difficult to maintain the efficiency of telephonic transmission and to necessitate continual refinements in the existing forms of equipment.

In exchange practice considerable use is being made of semi-automatic equipment, both in the handling of trunk connections and in the distribution of incoming calls among the operators. A few complete automatic equipments have been installed during the year.

Swedish inventors have recently produced a powerful long distance transmitter which gave very successful working over a distance of 1360 miles from Stockholm to Paris. It employs a light steel cylinder mounted on a diaphragm so as to make varying contact with a large surface of granulated carbon.

Conservative estimates show that the telephone industry of the United States gives employment to about 160,000 persons, pays more than \$75,000,000 annually in wages and salaries, operates 14,000,000 miles of wire and represents an aggregate investment of approximately \$1,000,000,000. The number of messages per annum exceeds 12,500,000,000. The magnitude of the industry in America is double that of the entire remainder of the world.

TELEPHONY, WIRELESS. See *WIRELESS TELEPHONY*.

TEMPERATURE, CRITICAL. See *CHEMISTRY*.

TENNESSEE. One of the South Central Division of the United States. Its area is 43,022 square miles. The population in 1909, according to a Federal estimate made in that year, was 2,248,404.

MINERAL PRODUCTION. The mineral production of the State has made great gains in recent years. Coal, iron and copper are the chief products. The total production of coal in the State in 1908 was 6,199,171 short tons, with a spot value of \$7,118,499. This was a decrease of 611,072 short tons in quantity and of \$1,371,835 in value from the production of 1907. The decrease in Tennessee would probably have been somewhat greater had it not been for the long strike in Alabama which resulted in some benefit to the industry in Tennessee. There were employed in the mines of the State 11,812 men. It is the only State in which by far the larger number of men work nine hours a day. Only five mines, employing 287 men, reported eight hours for a day's work, and nineteen mines, employing 1921 men, work ten hours a day. There were no serious labor disturbances in the coal mines of the State. In 1908 strikes oc-

curred at only four mines and involved a total of only 350 men. There were 34 men killed in the coal mines of the State and 195 injured in 1908. The total production of the State up to 1908 amounted to 90,503,772 short tons. It is estimated that the original contents of the field when mining began was 25,655,000,000 short tons. There were mined in 1908 635,343 long tons of iron as compared with 813,690 tons in 1907. The State ranks eighth in the production of iron; the value of its product in 1908 was \$876,007, as compared with a value of the product in 1907 of \$1,325,134. There were manufactured in 1908, 290,826 tons of pig iron, as compared with 393,106 tons in 1907. There were 21 blast furnaces in the State of which 12 were in blast and nine out on January 1, 1909. The copper product of 1908 was 19,459,501 pounds, valued at \$2,568,654. This was an increase of over half a million pounds in quantity over the product of 1907, but owing to the difference of average prices for copper for 1907-8 the value of the output in the latter year showed a decrease of \$1,209,969. Zinc is mined in considerable quantity and in 1908 688,149 pounds of spelter, valued at \$32,343, was produced. In the State in 1908 were mined 178.94 fine ounces of gold, valued at \$3699, and 57,696 fine ounces of silver, valued at \$30,579. Gold is obtained chiefly from placers and from the copper ores of Ducktown in Polk county. Phosphate rock was mined in 1908 to the amount of 455,413 long tons, valued at \$1,877,221, a marked decrease over the production of 1907, which was 638,612 tons with a value of \$3,047,836. Other mineral products of the State are building stone, lime, sand and gravel, and mineral waters, together with mineral paints, natural gas and sand-lime brick. The value of the mineral products of the State in the year 1908 was \$19,277,031, as compared with a value of the product of 1907 of \$26,525,004.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn 78,650,000 bushels, valued at \$55,055,000, from 3,575,000 acres; winter wheat, 8,320,000 bushels, valued at \$9,568,000, from 800,000 acres; oats, 4,000,000 bushels, valued at \$2,120,000, from 200,000 acres; barley, 24,000 bushels, valued at \$19,000, from 1000 acres; rye, 86,000 bushels, valued at \$83,000, from 8000 acres; buckwheat, 15,000 bushels, valued at \$11,000, from 1000 acres; potatoes, 2,250,000 bushels, valued at \$1,598,000, from 30,000 acres; hay 675,000 tons, valued at \$8,640,000, from 450,000 acres; tobacco, 53,290,000 pounds, valued at \$4,156,620, from 73,000 acres. The cotton crop of 1909 was estimated at 240,000 bales, as compared with 340,000 bales in 1908. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 324,000; mules, 290,000; dairy cows, 321,000; other cattle, 565,000; sheep, 347,000; swine 1,264,000. The wool clipped in 1909 was estimated at 1,441,440 pounds.

FISHERIES. The value of the product of the fisheries of the State for the year ending December 31, 1908, was \$111,860. Of these products, the most important in point of value was buffalo, which were taken to the amount of 704,100 pounds, valued at \$22,360. Next in point of

value were catfish, \$19,940. Other important fish taken were black bass, \$12,500; mussel shells and pearls, \$13,590, and German carp, \$8150. There were 360 independent fishermen engaged in the fisheries of the State and 67 wage-earning fishermen were employed. The number of vessels engaged was 399, valued at \$9,360.

EDUCATION. The total number of pupils enrolled in the schools of the State in the year 1907-8 was 507,887, which was 22.85 per cent. of the population. The average daily attendance was 342,505. The total number of teachers was 10,005. The legislature of 1907 passed an important measure toward the betterment of the schools in the State. Under the provisions of this act the county is made the unit of school organization instead of the school district, and the Board of Education, composed of five members, in the county takes the place of the three District Directors for the district under the old district system of organization. This legislature gave in round numbers to the educational institutions of the State \$1,400,000. The average monthly salary of teachers is \$37.10.

FINANCE. The report of the State Treasurer for the years 1907-8 showed a balance in the treasury on December 20, 1906, of \$1,163,750. The total receipts from December 20, 1906, to December 19, 1908, inclusive were \$7,266,341, and the disbursements for the same period were \$7,297,191, leaving a balance in the treasury on December 20, 1908, of \$1,132,900.

CHARITIES AND CORRECTION. The charitable and correctional institutions of the State included the Middle, Eastern and Western Hospitals for the Insane, the Tennessee Industrial School, the Blind Girls' Home, and the various State prisons and penitentiaries.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: Laws were enacted the effect of which is State-wide Prohibition. (See PROHIBITION and the paragraphs below.) A board of commissioners on uniformity of legislation was established; provision was made for primary nominations for all offices except those of judges and attorneys-general; a library commission was created; a general education bill was passed, and 25 per cent. of the gross revenues of the State were appropriated for its purposes; the sale of agricultural seeds was regulated; provision was made against the spread of disease among cattle; measures were passed regulating fire insurance and it is provided that persons shall not be disqualified as jurors because of opinions based on newspaper reports or rumors. A law was passed for the punishment of false statements on packages of merchandise as to weight and measure.

POLITICS AND GOVERNMENT. The chief political interest in the State centred about the passage of the Prohibition bill. The bill was strongly opposed by Governor Patterson, but it was passed on June 12 in the Senate by a vote of 20 to 12, and on June 13 in the House by a vote of 62 to 36. The struggle attending the passage of the bill in the House was probably the fiercest ever known in the political history of the State. The bill was vetoed by Governor Patterson on January 19. He assigned as his reasons for this action that the bill was against the will of the majority, that it defied the Democratic platform, that arbitrary Prohibit-

tion laws are not obeyed, that it destroyed revenue, at the same time fomenting discord, and resulting in money being sent abroad, that it was intemperate, tending to foster aristocracy, and that it would teach the youth of the State daily lessons of evasion and duplicity. On January 20 the bill was repassed over the Governor's veto by a vote of 20 to 13 in the Senate and 61 to 36 in the House. The legislature also passed a bill prohibiting the manufacture of intoxicants in Tennessee after the 1st of January, 1910. This bill was also vetoed by the Governor and was repassed over his veto. This bill bars the manufacture or sale of any alcoholic beverage in the State of Tennessee. The State-wide Prohibition law went into effect on July 1, 1909. This law makes it illegal to sell alcoholic beverages within four miles of any schoolhouse in the State. By this provision only two places remain in the State where liquor can be sold. Both are within 12 miles of Memphis, near the Mississippi State line. The nearest schoolhouse is six miles from both these points. The only counties in the State in which local option had not already prevented the sale of liquor were Memphis, Chattanooga and La-follette counties, and as the result of its passage the entire State becomes Prohibition.

Measures were at once taken on the part of the liquor and brewer interests against the validity of the law, but on September 3 it was upheld in all of its provisions, except as regards sales for shipment outside of the State, in an opinion handed down by Chancellor T. M. McConnell. The court holds that interstate commerce laws take precedence over State laws in shipments outside the State. On February 19 the legislature passed over the veto of Governor Patterson measures providing for a compulsory, legalized primary, and for creating, without the aid of the executive, State and county election boards. On February 26, thirteen members of the Senate were declared in contempt by that body for leaving the State in order to defeat its laws. On March 3, the legislature in joint session maintained a quorum and elected State officers, thus defeating the purpose of the Senators who left the State in order to prevent action thereon. See ELECTORAL REFORM.

OTHER EVENTS. In January, eight men were found guilty of being concerned in the murder of Captain Quentin Rankin at Reelfoot Lake on October 19, 1908. Six of them were sentenced to death. Several of the men implicated turned State's evidence and the names of practically all the band concerned in the murder were given. During the progress of the trial the witnesses were surrounded by armed soldiers and escorted from the jail to the courtroom at each session of the court. Many stories were told by witnesses of cruelties by members of this band on those who had incurred their displeasure. On July 3, the Supreme Court of the State reversed the verdict and directed that the men be given a new trial, on the ground that the grand jury which had found the indictments against them had not been selected in a proper manner and that the State did not allow the defendants a sufficient number of challenges. On March 20, Col. D. Cooper and his son, Robin J. Cooper, were found guilty of murder in the second degree for the killing of former Senator E. W. Carmack on November 9, 1908. The trial began on January 20, 1909, and was one of the most sensa-

tional trials conducted in the State. The penalty for the crime was fixed at 20 years' imprisonment for each man. On May 11 a verdict of guilty, with imprisonment for ten days in jail and a fine of \$500 was returned by the jury in the case of fourteen night riders, charged with whipping J. M. Reese on October 15, 1908. Mr. Reese was taken from his home in Waverly at night and was forced to walk into the woods and there receive 25 blows because the night riders declared he had talked too much about the night riders. After a trial lasting 23 days the jury brought in a verdict of guilty against Marcellus Rinehart, and other night riders for the murder of Rufus Hunter, a farmer in the dark tobacco district of Montgomery county, on June 8, 1908.

On May 24 the Supreme Court of the United States rendered a decision finding the sheriff of Hamilton county, his deputy and some other persons guilty of contempt of court as the result of the lynching of a negro confined in jail in Chattanooga. The prisoner had been sentenced to death by the local courts, but the Supreme Court had granted an appeal. In spite of this the sheriff and others offered no resistance to the actions of a mob which attacked the jail, took out and lynched the prisoner. According to the opinion of Chief Justice Fuller, who rendered the decision, they were adjudged guilty of contempt of court because of their declared disapproval of the Supreme Court and the sheriff's assertion that the court was responsible for the lynching for the reason that the people would not submit to a delay. Three justices of the Supreme Court dissented from the decision on the ground that the age and the physical condition of the sheriff precluded any resistance on his part to an armed mob, and that the fact that he did not attempt to kill any member of it showed no evidence of complicity with those guilty or of contempt of court.

On April 30 the most destructive tornado for many years passed over the middle and western parts of the State, causing the loss of more than a score of lives and property valued at hundreds of thousands of dollars. The region visited included Montgomery, Hickman, Williamson, Rutherford and Humphreys counties in the middle of the State, and Carroll, Madison and Hardeman in the western part. In the latter part of May storms cost several lives and did much damage to property along the Mobile, Jackson and Kansas City Railroad.

OFFICERS: Governor, Malcolm R. Patterson, Secretary of State, H. W. Goodloe; Treasurer, R. E. Folk; Commissioner of Agriculture, John Thompson; Superintendent of Public Instruction, R. E. Jones; Comptroller, Frank Dibrell; Adjutant-General, Turley Brown; Attorney-General, Chas. T. Cates—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, W. D. Beard; Justices, B. D. Bell, W. K. McAllister, M. M. Neil and John K. Shields; Clerk, Joe J. Roach—all Democrats.

The State Legislature of 1909 was composed of 28 Democrats and 5 Republicans in the Senate, and 77 Democrats and 22 Republicans in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

TETANUS. The *Journal of the American Medical Association* in its seventh annual sum-

mary of Fourth of July injuries show that in 1909 there were 150 cases of tetanus, the largest number since 1903, when there were 415 cases. It is noteworthy that the large number of tetanus cases corresponds with the increased number of blank cartridge wounds, of which there were 1095 reported in 1909; that the States having the largest number of blank cartridge injuries had also the greatest number of deaths; and that there was a higher percentage of deaths from such injuries (10.2 per cent.) than from gunshot wounds (6.1 per cent.). The indictment against the blank cartridge is therefore fairly complete, 86.5 per cent. of cases being due to this agency. Wounds were usually in the hand. Seven days on an average elapsed between the receipt of the wound and the development of tetanus in the fatal cases, and death ensued in the average case in ten and a half days after the development of the first symptoms. Of the total of 150 cases of lockjaw reported, 125 (or 84 per cent.) ended fatally. Irrespective of tetanus, there were 215 deaths from fireworks; 17 persons were killed outright by fire-arms, 16 by explosions of powder, 7 by giant firecrackers, 7 by toy cannon, and 37 were burned to death by fire and explosives, many of which were of the so-called harmless variety. Of non-fatal injuries there were 5092. These included 16 people who were totally blinded, 36 who lost one eye each, 41 who lost legs, arms or hands, and 176 who lost one or more fingers. The peculiar danger of the blank cartridge pistol wound lies in the fact that it is often very slight, and it is frequently untreated or treated insufficiently or too late. Every such wound should be promptly laid open, thoroughly cleansed from all foreign materials, cauterized and dressed antiseptically. A prophylactic injection of tetanus antitoxin should be administered to the patient. Under such treatment very few deaths would occur. The unusual increase in the number of deaths and injuries this year was thought to be due to the fact that the celebration was spread over three days, the Fourth of July falling on Sunday.

TEXAS. One of the South Central Division of the United States. It is the largest State in the Union and has an area of 265,896 square miles, of which 3498 square miles are water surface. The population in 1909, according to a Federal estimate made in that year, was 3,780,574.

MINERAL PRODUCTION. Texas is one of the most important States in the production of petroleum, although in recent years the amount produced has suffered a decline, and this continued in 1908 in spite of new finds south of the developed fields. The production in 1908 was 11,206,464 barrels, as compared with a production in 1907 of 12,322,696 barrels. The value of the product for 1908 was \$6,700,708, as compared with a value of the 1907 product of \$10,401,363. The leading fields are the Humble (3,778,521 barrels); the Batson (1,593,370 barrels); Sour Lake (1,595,060 barrels) and the Saratoga (1,634,786 barrels). The Humble field developed many good producers in 1908 and did more than any other region to check the decline in the State's production. Texas ranks fourth among the States producing petroleum, being surpassed only by Oklahoma, California and Illinois. Texas was one of the few States which showed an increase in the production of coal

in 1908 over 1907. Part of this increase was due to the continued decrease in the production of petroleum and its use for fuel purposes within the State. There were mined in 1908 1,895,377 short tons of coal, having a spot value of \$3,419,481. This was an increase over the output of 1907 of 247,308 short tons in quantity and \$642,670 in value. The coal mined is bituminous and lignite. The former was mined in 1908 to the amount of 1,047,407 short tons and the latter to the amount of 847,970 short tons. The branch line of the Wichita Falls and Southern Railway Company from Wichita Falls to the bituminous coal areas of Young county was completed in 1908 and that county entered the list of producers with a total output of 1000 tons. The bituminous coal mines in McCullough county were idle in 1908. There were employed in the coal mines of the State in 1908 4400 men as against 4227 in 1907. The estimated original supply of bituminous coal in Texas is placed at 8,000,000,000 short tons and that of lignite at 23,000,000,000 short tons. There had been produced up to the beginning of 1909 a total of 16,340,225 short tons of both varieties. Texas produced clay products in 1908 to the value of \$2,066,735, as compared with a value of \$2,557,561 in 1907. There are produced also large quantities of stone, quicksilver and lime. Other mineral products are coal products, asphalt, sulphur, salt, sand and gravel, mineral waters, iron ores, pig iron, lead, natural gas, and sand-lime brick. The value of the mineral products of 1908 was \$15,212,929, as compared with a value of the product of 1907 of \$19,806,458.

The production of coal was about the same in 1909 as in 1908.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 122,250,000 bushels, valued at \$92,910,000, from 8,150,000 acres; winter wheat, 5,050,000 bushels, valued at \$3,950,000, from 555,000 acres; oats, 11,500,000 bushels, valued at \$7,130,000, from 615,000 acres; barley, 78,000 bushels, valued at \$78,000, from 4000 acres; rye, 45,000 bushels, valued at \$55,000, from 4000 acres; rice, 9,894,000 bushels, valued at \$7,717,000, from 291,000 acres; potatoes, 3,000,000 bushels, valued at \$3,180,000, from 60,000 acres; hay, 587,000 tons, valued at \$6,985,000, from 618,000 acres; tobacco, 650,000 pounds, valued at \$170,300, from 1000 acres. The corn crop of 1909 showed a great decrease from that of 1908, which was 201,848,000 bushels. The acreage, however, increased from 7,854,000 to 8,150,000. The crop of winter wheat in 1909 was hardly half that of 1908, which was 10,164,000 bushels. The acreage fell from 924,000 to 555,000. In the production of rice Texas is surpassed only by Louisiana. The rice crop of 1909 was slightly larger than that of 1908, which was 9,142,500 bushels. The acreage increased somewhat in 1909. The cotton crop of 1909 was estimated at 2,570,000 bales. The State has long ranked first in the production of cotton. The tobacco crop fell from 2,400,000 pounds in 1908 to 650,000 pounds in 1909, while the acreage decreased from 3000 to 1000. The farm animals on January 1, 1910, were as follows: Horses, 1,369,000; mules, 702,000; dairy cattle, 1,137,000; other cattle, 7,131,000; sheep,

1,909,000; swine, 21,153,000. The wool clipped in 1909 was estimated at 8,923,040 pounds. The production of sugar in Texas in 1909 was estimated at 10,000 tons.

CHARITIES AND CORRECTIONS. The charitable and correctional institutions of the State include the Texas School for the Deaf at Austin, the Institution for the Deaf, Dumb and Blind Colored Youths, the Texas School for the Blind at Austin, the State Epileptic colony at Abilene, the Southwestern Insane Asylum at San Antonio, the State Lunatic Asylum at Austin, and the State penitentiaries.

FINANCE. The report of the State Auditor for the year ending August 31, 1908, showed a balance in the treasury on September 31, 1907, of \$1,403,974. The receipts for the year ending August 31, 1908, were \$10,741,035. The disbursement for the same period amounted to \$10,743,211, leaving a balance on hand September 1, 1908, of \$1,401,798. The bonded debt of the State was about \$4,000,000, of which nearly all is owned by school funds.

FISHERIES. The value of the products of the fisheries of the State for the year ending December 31, 1908, was \$445,890. Of these products the most important in point of value was oysters, of which 497,200 bushels, valued at \$167,880, were taken. Next in point of value was red snapper, of which 2,251,600 pounds, valued at \$78,810, were taken. Following in point of value were channel bass, \$42,860; catfish, \$26,220; sheephead, \$14,060; and buffalo, \$7430. Other fish taken in considerable quantities were pike, crabs, shrimp, terrapin, and croaker. There were 1063 independent fishermen engaged in the fisheries of the State and 717 wage-earning fishermen employed. The vessels employed numbered 121, with a value of \$219,118.

EDUCATION. The attendance for the school year 1907-8, the latest date for which figures are available, was \$496,361. There were 4761 white male teachers employed and 11,120 female; colored teachers, 1293 male, and 3120 female. The average annual salary of teachers was \$346.62. The net expenditure for the maintenance of schools was \$9,511,240.

POLITICS AND GOVERNMENT. The chief political interest in the State during the year centred about the conflict between Governor Campbell and the State Legislature in regard to the passage of certain measures, including the provision for a constitutional amendment carrying State-wide Prohibition, laws providing for State bank guaranty, and measures providing for elimination of race track betting in the State. Proposed constitutional amendments submitting the question of State-wide Prohibition to the people were introduced into both branches of the legislature on January 14. Governor Campbell recommended submission of the proposition in his message on February 5. The measure was killed in the House by a vote of 85 to 44, being two less than the necessary two-thirds, and in the Senate by 19 to 12. The regular session of the legislature came to an end on March 13, and Governor Campbell issued a call immediately for a special extraordinary session for the purpose of passing a State bank guaranty bill and other measures of minor interest. A new session at once convened. The Senate on the same day by a vote of 21 to 8 expelled Senator Bascom Thomas from his seat, for charges of corruption which he had publicly

made and which he failed to substantiate before a special committee appointed to take testimony. (Mr. Thomas was subsequently re-elected by his constituents.) Governor Campbell immediately issued a call for a special election to be held on April 3 to fill the vacancy caused by the Thomas expulsion. On April 11, Governor Campbell aroused bitter feelings on the part of many members of the House and Senate by an official communication in which he charged that the legislature was influenced by "the most infamous lobby that ever trampled upon the will of the people." He said: "The regular session of sixty days was of little value to the people. Not a single platform demand was enacted into a law. One was defeated and you adjourned without even considering the appropriation bill, whereupon the lobby applauded and it is not strange that you received from the newspapers the felicitations of the Chairman of the Republican Executive Committee of this State. Probably the boldest, the most arrogant and the most formidable lobby, made up of the combined selfish interests, that ever assembled at the Capitol, gathered here at the assembling of this legislature." Governor Campbell charged that although the legislature had been in regular session since January 12, everything that had been done in the way of legislation could have been done in ten days. As a result of this breach between the legislature and Governor Campbell the former refused to pass the State guaranty bill, and adjourned without taking action. A second extraordinary session was convened on April 12, and at this session the State Bank guaranty bills and the bills preventing betting at race tracks were passed.

The long-standing litigation between the State authorities and the Waters-Pierce Oil Co., came to an end on April 24, when the oil company paid the fine of \$1,808,753, assessed against it by the State. See **STANDARD OIL CO.**

Henry Clay Pierce, president of the Waters-Pierce Oil Company was indicted in 1907 as the result of an affidavit made by him in 1900, which enabled his company to be admitted, following the first expulsion. Mr. Pierce was arrested in May, 1907, but resisted extradition and appealed to the Federal courts. This appeal finally reached the United States Supreme Court which, on January 1, 1909, decided that Mr. Pierce must return to Texas for trial. On April 11, 1909, another indictment was found against Mr. Pierce, making an additional charge of perjury against him, alleging that he was guilty of perjury and false swearing in connection with the readmission of the Waters-Pierce Oil Company to do business in Texas. Mr. Pierce returned to Texas for trial on November 28 and in the court proceedings he was acquitted upon the instructions of the court, no evidence being submitted to the jury. His lawyers urged immunity and it was sustained by the court, and this resulted in the instruction for acquittal. In a proceeding in Missouri, Pierce gave testimony relative to a stock ownership in the Waters-Pierce Oil Company, which the Texas authorities claimed to be in direct contradiction to the averments of his 1900 affidavit. The Missouri testimony was offered in the Texas penalty and ouster case, Mr. Pierce, in a hearing before a commission in New York, admitting it to be true. The statutes of Missouri and

Texas provided exemption and immunity in certain cases, and the Travis county district judge said the intent was plain to construe the statutes to extend to the conditions concerning him and ruled out that testimony. Inasmuch as that was all the Texas authorities could offer, the case came to an abrupt end before testimony was offered.

Among the most important political events in the State during the year was the investigation carried on into the conduct of the State penitentiaries by an investigating committee. Excessive cruelty, lack of sanitation, muddled books, excessive cost of construction of State railroads, improper methods of prison management and an entire lack of penal reform were among the matters brought out. The committee made a special report to the Governor which was to be followed by others. See **ELECTORAL REFORM**.

OTHER EVENTS. On April 3, a fire which destroyed nearly \$4,000,000 worth of property and caused the loss of one life spread over a large area of the city of Ft. Worth. The heaviest loss was suffered by the Texas Pacific Railroad, whose round-houses, shops, and freight depot were burned, together with 20 engines and 150 cars. The Broadway Baptist Church and the Broadway Presbyterian Church were also burned, and 500 families were made homeless. Several of the largest wholesale groceries of the city were burned. On May 30, the town of Zephyr was visited by a tornado. More than 25 persons were killed and many injured. On July 21, a storm on the Gulf gave the new sea wall at Galveston its first real test and it was found equal to the emergency. Two large bath-house pavilions outside the wall, and two fishing piers extending into the Gulf were destroyed by the waves. Five persons perished on the Tarpon Fishing Pier, six miles from the city across the Bay. Two fishing piers on the North Jetty (Tarpon and Beltison) five and seven miles out in the Gulf were destroyed and 38 persons were rescued from Beltison and 6 from Tarpon. The sea wall successfully withstood the force of the waves. The effects of the storm were felt inland for nearly 200 miles and many small buildings were blown down in the territory fifty miles back from the coast.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: A library commission was established and instruction in manual training, domestic science and agriculture was provided for. A board of public health was created, and the establishment of a home for lepers was authorized. A pure food law was enacted; measures were passed regulating the practice of nursing, and providing for the inspection of plumbing. Provision was made for prospecting the mineral resources of the State, and for agricultural experiment stations, and the protection of trees, plants and shrubs against disease. A number of laws were passed regulating railroad operation, among them one prohibiting more than sixteen hours consecutive service in the operation of trains. Blacklisting is forbidden and penalties are imposed for delays in adjusting claims. The law of comparative negligence is adopted in railroad cases. The liquor laws are made more rigorous and various forms of gambling, including betting on horse races, are prohibited. Provision is made for the guaranty of

bank deposits by either giving a bond or contributing to a deposit fund.

OFFICERS: Governor, T. M. Campbell; Lieutenant-Governor, A. B. Davidson; Secretary of State, W. B. Townsend; Treasurer, Sam Sparks; Comptroller, John W. Stephens; Superintendent of Public Instruction, R. B. Cousins; Land Commissioner, J. T. Robison; Attorney-General, R. V. Davidson; Commissioner of Agriculture, E. R. Kone; Commissioner of Insurance, T. B. Love—all Democrats.

JUDICIARY. Supreme Court: Chief Justice, Reuben R. Gaines; Associate Justices, Thomas J. Brown and F. A. Williams; Clerk, F. T. Connerly—all Democrats.

The State Legislature of 1909 was composed of 30 Democrats and one Republican in the Senate and 106 Democrats and three Republicans in the House. The State representatives in Congress will be found in the section *Congress* of the article **UNITED STATES**.

TEXTILE MANUFACTURING. The increased number of textile mills constructed during 1909 indicated that the various textile industries were in a more prosperous and active condition than in 1908, when the new construction was the smallest in ten years. The *Textile World Record* in its annual report of mill construction for 1909, from which the accompanying tables and statistics are derived, stated that every branch of the textile industry, cotton, woolen, knitting and silk, showed an increase which reflected the revival of business.

In the cotton industry the South continues its rapid progress, for 42 mills with 527,128 spindles were built, as compared with 22 in New England with 599,000 spindles, and 16 in the Middle and Western States with 79,968 spindles. The total increase in the number of spindles, 1,206,496, is greater than for any year since 1900, when it amounted to 1,306,784. Analysis of the statistics shows that while more cotton mills were erected in the South, those in New England were much larger than in other sections and thus hold good. Also when weaving as well as spinning are considered, New England showing 12,002 looms, as compared with 13,721 outside of that group of States.

NEW COTTON MILLS

	No.	Spindles	Looms
New England			
Connecticut	4	24,000	519
Massachusetts	10	405,000	6,649
Maine	2	.....	.....
New Hampshire	2	150,000	4,002
Rhode Island	6	20,000	859
Total	22	599,000	12,002
Southern States			
Georgia	9	80,000	1,313
Kentucky	1	2,000	.....
North Carolina	19	215,528	4,199
South Carolina	10	141,600	3,515
Tennessee	1	25,000	800
Virginia	2	63,000	1,946
Total	42	527,128	12,068
Middle and Western States			
New Jersey	2	6,120	29
New York	3	20,000	4
Oklahoma	2	53,848	1,290
Pennsylvania	9	.....	231
Total	16	79,968	1,653

COMPARISON OF NEW MILL CONSTRUCTION FOR FIVE YEARS

	1909	1908	1907	1906	1905
Cotton	80	47	64	74	33
Woolen	47	23	25	56	38
Knitting	105	94	83	103	79
Silk	37	33	51	36	53
Miscellaneous..	20	25	39	34	42
Total	289	222	262	303	245

The cotton census issued by the International Federation of Cotton Spinners' and Manufacturers' Associations on August 31, 1909, gave the following statement of the cotton spindles in each country:

Great Britain	53,311,630
Germany	10,162,908
France	7,000,000
Russia	7,800,000
Austria	4,351,910
Italy	4,000,000
Spain	1,900,000
Japan	1,731,587
Switzerland	1,496,698
Belgium	1,231,165
Portugal	450,696
Holland	424,773
Sweden	450,000
Norway	75,844
Denmark	77,558
United States	27,783,000
India	5,800,000
Canada	855,293
Mexico, Brazil and other countries....	2,600,000
Total	131,503,062

The figures for 1909 for the United States in the above table, as well as in the comparative statement below, are based on the preliminary reports to the Bureau of the Census and were believed to be somewhat below the true numbers. Those for earlier years are the result of final tabulations.

Year	United States	Spindles
1909	27,783,491	
1908	27,505,422	
1907	26,375,191	
1906	25,250,096	

The total of woolen and worsted mills compares more than favorably with 1909, when but 22 were constructed. Previous years construction were: 1907, 25; 1906, 56; 1905, 38; 1904, 45; 1903, 65. In the list of new mills 3 were carded woolen spinning mills with 8 sets of cards and an estimated daily consumption of 1200 pounds of scoured wool, and 11 were worsted spinning mills, two of which alone had an estimated daily consumption of 75,000 pounds of scoured wool.

The 104 new knitting mills reported for 1909 was a slight increase over 1908, when 92 new mills were reported and indicated that a steady and constant growth was being manifested in this industry as the new mills reported in earlier years were as follows: 1907, 83; 1906, 103; 1905, 79; 1904, 111; 1903, 105.

THACHER, JOHN BOYD. An American publicist and collector, died February 25, 1909. He was born at Ballston, N. Y., in 1847, and graduated from Williams College in 1869. He was a member of the New York State Senate in 1884-5, and introduced many measures relating

to the betterment of tenement house conditions. In 1886, 1887, 1896 and 1897 he was mayor of Albany. He was chairman of the Bureau of Awards at the World's Columbian Exposition in 1890. Mr. Thacher was a notable collector of autographs and manuscripts. His collection of the former is said to have numbered over 25,000. His collection of historical manuscripts was also remarkable. He wrote much on historical subjects, among his works being *The Continent of America; Its Discovery and Its Baptism* (1896); *Christopher Columbus; His Life; His Works; His Remains* (1903-4); *Outlines of the French Revolution, Told in Autographs* (1905).

THEODOR, KARL, DUKE IN BAVARIA. A German prince and eye specialist, died November 30, 1909. He was born at Posenhofen in 1839. He became an officer of artillery and attained the rank of general in the Bavarian army. His natural inclination, however, was toward science and early in life he took up the study of medicine at the University of Munich, graduating with the degree of M. D. He was not allowed to practice, however, until 1880, and then he was obliged to secure a special decree of the German Imperial Chancery permitting him to do so. He turned his attention to diseases of the eye and became one of the most famous of all European specialists. He was the author of several books and memoirs upon ophthalmological topics. One of his sisters was the Empress of Austria, wife of Francis Joseph. Another was the Duchesse d'Alençon, who lost her life in the Paris Charity Bazaar fire on May 4, 1907. He married Sophie, Princess of Saxony, who died, and he later married Maria Josefa.

THEOLOGICAL SEMINARIES. See UNIVERSITIES AND COLLEGES.

THEOSOPHICAL SOCIETY, THE. An organization of theosophists, founded in New York City in 1875. Its headquarters were in 1879 removed to Adyar, Madras, India. The objects of the society are: To form a nucleus of the universal brotherhood of humanity without distinction of race, creed, sex or color; to encourage the study of comparative religion, philosophy and science; to investigate unexplained laws of nature and powers latent in man. There are various sections of the Society: in America, Great Britain, India, Scandinavia, France, Italy, Germany, Australia, New Zealand, Netherlands, Cuba, Hungary and Finland. In the American section there were in 1909 96 lodges with about 2900 members. The most important event of the year for the members of the American Section was the visit of Mrs. Annie Besant, president of the Society, who made a tour of ten weeks. She visited many of the important cities of the country and delivered a large number of lectures. The general secretary and treasurer of the American Section is Weller Van Hook, 103 State Street, Chicago. Several other bodies in the United States use the same name but are not affiliated.

THOMAS, GEORGE C. An American capitalist, connoisseur and philanthropist, died April 21, 1909. He was born in Philadelphia in 1839. He began his business career as a clerk in the office of Jay Cooke, and later he became a member of the firm. In 1883 he resigned to become the head of Drexel and Co., a position which he retained until 1905, when he retired from ac-

tive business. Mr. Thomas was for many years an ardent collector of rare autographs and works of art. He owned manuscript letters signed by every signer of the Declaration of Independence. His collection of Franklin and Washington literature was considered the finest in the United States. Mr. Thomas was active in many philanthropic interests in Philadelphia.

THOMSEN, JULIUS. A Danish chemist, died February 13, 1909. He was born in 1826. He was best known in connection with studies in thermo-chemistry. He was awarded the Davy medal of the Royal Society in 1883. Prof. Thomsen shared with Berthelot the honor of having made the most serious investigation undertaken in thermo-chemistry. The results of his labors are contained in four volumes, entitled *Thermochemische Untersuchungen*, published in 1882-8. These contain records and results of researches that extend over all branches of chemistry, and form a digest of the science of thermo-chemistry.

THOMSON, WILLIAM JUDAH. An American rear-admiral (retired), died August 12, 1909. He was born in Washington, D. C., in 1841. He entered the United States service in 1865 as acting assistant paymaster. He was successively paymaster, pay inspector, and pay director, and was retired in 1903 as rear-admiral.

THYRESOL. This drug consists principally of the methyl ether of santalol, and has the chemical formula $C_{15}H_{25}OCH_3$. It is said to be prepared by the action of sodium methylate upon santal oil chloride. The substance occurs as a colorless liquid having an aromatic odor, almost insoluble in water, but easily soluble in alcohol and ether. Its uses are similar to those of the oil of sandal wood (specific inflammatory conditions of the genito-urinary tract) but it is said to be practically free from the irritant effects on the stomach and kidneys which characterize the latter drug.

TIBER BRIDGE. See BRIDGES.

TIBET. A Chinese dependency of Central Asia lying to the north of the Himalayas. Area, estimated at 463,200; population estimated at from three to six millions. Capital, Lhasa, with between 15,000 and 20,000 inhabitants. The country is the home of Buddhism. The Dalai Lama is the governmental head, assisted by a council consisting of a prime minister, five priests, and four laymen. There are two Ambans, or Chinese residents, at Lhasa, and Chinese troops are stationed at Lhasa, Shigatse, and Dingri. The three great monasteries outside Lhasa, however, actually govern the country through the Great Assembly (Tsongdu). The new trade marts have been opened (Gyangtse, Gartok, Yatung), and trade regulations signed (1908). The total trade in 1908-9 was about £305,000. The route is by way of Bengal through Sikkim, or through the Punjab and the United Provinces. The Chinese influence in administration tends to increase. The present Dalai Lama, T'ubstan, was born in 1876 and has reigned from birth. Chinese residents, Tchao Ehr-feng and Wen Tsong-yo. See EXPLORATION.

TILFORD, WESLEY HUNT. An American capitalist, died March 2, 1909. He was born

in Lexington, Ky., in 1850. His early years were spent in the oil business of his brother and J. A. Bostwick in New York City, and on the dissolution of that business he formed a partnership with his brother. The firm soon entered into relations with the Standard Oil Co., with which it was eventually merged. Mr. Telford organized, in 1878, the business of the Standard Oil Co. on the Pacific Coast, and in Colorado and other States. He was president of the California Oil Co., and he established the great Standard Oil Pacific carrying lines. Returning to New York he took charge of the transportation lines of the Standard Oil Co. He became a director of the Standard Oil Co. of New Jersey in 1892; its treasurer in 1899, and vice-president in 1908. Mr. Telford was one of the most important witnesses in the dissolution suit of the United States against the Standard Oil Co. in 1907 and 1908.

TIMBY, THEODORE RUGGLES. An American inventor, died November 9, 1909. He was born in Dutchess county, N. Y., in 1819 and at the age of 16 years invented the floating dry dock. He later invented a turbine water wheel and a method of raising sunken vessels. His claim to the invention of the revolving turret, which was the most significant feature of the *Monitor* in her battle with the *Merrimac*, gave rise to a controversy which was never finally determined. He asserted that he had derived the idea for the revolving turret by seeing the old circular fort on Governor's Island in New York Harbor while crossing the ferry to New Jersey when he was 19 years of age. He made a simple drawing of a revolving battery and carried it to Washington. The commission appointed to consider the invention reported against it. Timby, however, filed a caveat in the patent office in 1843. Several years later another commission appointed to examine the invention reported against it. During the progress of the Civil War Timby claimed to have succeeded in enlisting important interests in the project of building a warship on the turret system at their own risk, and John Ericsson was to act as engineer. He received a royalty of \$5000 for the use of his patent turret used on the *Monitor* and two other vessels built by the company. This royalty was all that he ever received for his invention. The greater part of Timby's later life was spent in an attempt to have his claims as the inventor of the revolving turret on the *Monitor* acknowledged by Congress. His claims were supported by Rear-Admiral Daniel Ammen, Admiral Braine, and James G. Blaine, and others, but in this attempt he never succeeded. He continued his inventive work and patented in 1891 a system of sighting and firing coast defense guns.

TIMOR. An island of the Malay Archipelago, the largest of the Lesser Sunda group. Estimated area, 12,593 square miles; estimated population, 400,000. The western portion of the island belongs to the Netherlands, and the eastern (and larger) to Portugal. By convention of 1904, ratified in 1908, between the two governments, the boundary separating Dutch and Portuguese Timor was defined. Dutch Timor forms part of the Residency of Timor Archipelago, which is an Outpost of the Dutch East Indies and has an estimated area of 17,782 square miles and an estimated population of

308,600. Portuguese Timor has an estimated area of 7330 square miles and an estimated population of 200,000. The natives are pagans and are under immediate rule of their chiefs. The imports of Portuguese Timor, in 1907, amounted to 244,733 milreis, and the exports, 332,647 milreis. The principal exports were: Coffee, 202,621 milreis; sandal-wood, 38,823; wax, 19,499; sandal-root, 10,993. Estimated revenue for the year 1908-9, 132,472 milreis, including a contribution of 32,400 milreis from Macao (to which, prior to 1896, it was administratively attached); estimated expenditure, 221,291 milreis. Dilli is the port and capital.

TIN. The only tin ore produced in the United States during the year 1908 was a few tons of stream tin, sluiced from gravels in Seward Peninsula, Alaska. There was no production in the United States in 1909. The total production of tin in 1908, according to the figures of the United States Geological Survey, was 116,648 short tons. Of this the greater portion came from Straits Settlements. The total production from this source was 67,760 short tons. Bolivia followed with 19,040 tons. During 1908 the United States imported for consumption 41,267 short tons of pig tin, valued at \$23,923,560, an average of 28.986 cents per pound. The average price for the year was 29.42 cents.

According to the figures given by the *Engineering and Mining Journal* the tin production of 1909 amounted to 105,984 tons. Of this 59,870 tons came from the Straits Settlements, 16,500 from Bolivia. The table given below, from this authority, indicates the tin production of the world in 1908-9. It will be seen that the figures for 1908 differ somewhat from those of the United States Geological Survey given above.

TIN PRODUCTION OF THE WORLD

	1908	1909
Straits	62,392	59,870
Banka and Billiton	13,785	15,014
Australia	6,119	5,800
Bolivia	16,250	16,500
Chinese exports	4,000	3,500
Cornwall (England)	4,400	4,800
Miscellaneous	250	500
Total	107,196	105,984

The figures of tin consumption of the world, also from the *Engineering and Mining Journal*, are indicated in the following table:

TIN CONSUMPTION

	1908	1909
United States	31,700	39,550
Great Britain	29,400	29,334
Other European countries	28,050	30,068
India and China, from the Straits	3,265	3,400
Other countries	4,250	4,350
Australian consumption, etc... ..	500	500
Total	97,165	107,202

Imports of tin into the United States for the eleven months ended November 30, were 89,217,882 pounds, and it was estimated that the imports for the full year would be close to 100,000,000 pounds. Nearly 90 per cent. of the imports are Straits tin.

The tin market, which was unfavorable at the

beginning of 1909, improved gradually throughout the year. The consumption in the United States assumed large proportions, and as shipments from the East did not increase correspondingly, it was necessary to draw from the existing stocks. The table given below, from the *Engineering and Mining Journal*, indicates the price of tin in New York for 1908-9 by months.

TIN AT NEW YORK

Month	1908	1909
January	27.380	28.060
February	28.978	28.290
March	30.577	28.727
April	31.702	29.445
May	30.015	29.225
June	28.024	29.322
July	29.207	29.125
August	29.942	29.966
September	28.815	30.293
October	29.444	30.475
November	30.343	30.859
December	29.154	32.913
Average for year	29.465	29.725

Prices are in cents per pound.

TOBACCO. The crop in the United States in 1909 was the largest ever raised, amounting to 949,357,000 pounds. This is 230,000,000 pounds more than the crop of 1908, and one-third more than the five-year average. The area planted in 1909, 1,180,000 acres, was an increase of 26 per cent. over the previous year. This increased acreage was mainly in the North Central and South Central States. The acreage in the Burley district was the largest ever planted, the increase being attributed to the very short production in 1908. The farm value of the tobacco crop is estimated at \$95,719,000, a figure never before equaled, and nearly 50 per cent. above the five-year average. The Commissioner of Internal Revenue reports that during the fiscal year 1909 the United States government collected revenue on tobacco amounting to \$51,887,178.04.

The new United States tariff permits the importation, duty free, from the Philippine Islands of 300,000 pounds of wrapper tobacco, 1,000,000 pounds of filler tobacco, and 150,000,000 cigars. To assist the Philippine tobacco growers in establishing a high standard for their product, the insular government has provided for a careful inspection and grading of all tobacco shipped from the islands to the United States, and will allow only the best grades to be exported. This is to avoid the injury to the market which would result from the shipment of inferior grades of leaf and manufactured tobacco, which would discredit the Philippine product.

Tobacco is the second export crop of Porto Rico in value. The export of leaf tobacco, although it shows a great increase from year to year, does not keep pace with the increase in the export of cigars, probably owing to the abundance of skilled labor for manufacturing tobacco products. There has been a steady increase in the growing of cigar leaf tobacco, and also an improvement in quality. The growth of wrapper tobacco under cheese cloth is in the hands of large companies, while the filler tobaccos are produced, not only by the companies, but by a great many small planters, who sell their product either cured or as cut from the field.

The production of leaf tobacco in the Dominion of Canada in 1908 amounted to 11,266,732 pounds. Considerable opposition has been presented to the proposition of the French government to increase the retail price of tobaccos manufactured by it as a government monopoly. According to a consular report, foreign tobaccos retail in France at prices from two to five times as high as at home.

TOGOLAND. A German African protectorate, lying between the Gold Coast and Dahomey. Area, 33,700 square miles; population, about 1,000,000. Capital, Lome; chief native town, Togo, with 8000 inhabitants. Imports (1907), 6,700,000 marks; exports (chiefly corn, rubber, palm kernels, palm oil and ivory), 5,916,000. A railway connects Lome with Little Popo, with a branch from Lome to Palime. Estimated revenue and expenditures for 1909-10 balanced at 6,599,490 marks (including loan of 4,265,000 marks). Little Popo and Porto Seguro are included with Togoland under the administration of a governor (1909, Count von Zech-Neuhofen), who is aided by a government council.

TONGA ISLANDS, or FRIENDLY ISLANDS. A British protectorate in the South Pacific. Area, 390 square miles; population (1905), 21,103 natives of Tonga, 300 other natives, 151 British subjects, 89 other Europeans, and 120 half-castes. Nukualofa is the capital of King Jioaji Tubou II. The soil is fertile. Imports (1908), £98,166; exports (copra, green fruit, kava, etc.), £133,272. Total shipping, (1908), 136,847 tons (British, 132,098). Revenue (1908), £33,592; expenditure, £42,142. British agent and consul (1909), W. Telfer Campbell.

TONGKING. A French protectorate in French Indo-China (q. v.). Area, 46,223 square miles. Population, (1906) 5,896,510. The capital, Hanof, (population, 103,238), an agglomeration of small villages, is also the capital of French Indo-China. The people are mainly of the same race and religion as those of Annam. There are about 400,000 Roman Catholics. There are 38 schools, besides a school of medicine for natives of Hanof. The delta regions are fertile. The chief crop is rice, mainly exported to Hongkong; other products are sugar-cane, silk, cardamoms, coffee, cotton, fruits and tobacco. About 500,000 kilos of raw silk are produced annually. There is a cotton mill, with 16,000 spindles and 600 employees, at Haiphong, and one with 10,000 spindles at Hanof. Coal is mined at Hongay on the coast. The imports and exports are included in those of French Indo-China. In 1906 209 vessels of 151,940 tons entered, and 249 of 255,486 tons cleared at Haiphong. The King of Annam was formerly represented in Tongking by a viceroy, but in July, 1897, he consented to the substitution of a French residency in place of the viceroyalty. The present Resident-Superior is M. Morel.

TOTH, ALEXIS G. An ecclesiastic of the Orthodox Greek Church in the United States, died May 7. He was born in Hungary and educated in Russia. For a time he held a high government position in that country, but resigned to take holy orders. He came to the United States and for many years had a large congregation at Wilkes-Barre, Pa. He was a close friend of Czar Nicholas II., who presented him with a valuable ecclesiastical crown.

He was chief ecclesiastic of the Orthodox Church in the United States after Archbishop Tichon.

TRADE UNIONS. The vast majority of trade-unionists in the United States and Canada are affiliated with the American Federation of Labor (q. v.). In 1909 that organization included 118 national and international unions, representing about 27,000 local unions, 38 State branches, 594 city central unions and 573 local unions. These unions publish about 245 weekly or monthly papers. This Federation with its more than 1,600,000 members or two-thirds of all trade-unionists in the two countries, and its 1000 organizers, represents the trade union movement in North America. Among the larger unions affiliated with the Federation are the United Mine Workers of America, with 252,500 members in 1908; the United Brotherhood of Carpenters and Joiners of America, with 180,000 members; the International Association of Machinists, 62,100; the Brotherhood of Painters, Decorators and Paperhangers of America, 64,800; the Retail Clerks' International Protective Association, 50,000; the United Garment Workers of America, 43,900; International Typographical Union, 44,000; the Cigarmakers' International Union, 41,000; the United Brewery Workers, 40,000; and the International Brotherhood of Teamsters, 37,700.

All unions affiliated in the Federation in 1908 paid in benefits a total of \$2,144,395, an increase of \$200,000 over the previous year. Of this sum about 60 per cent. went for death claims, about 28 per cent. for sick benefits, 10 per cent. for unemployment benefits, and the remainder for traveling benefits and tool insurance. The unemployment benefits were larger than ever before. Of the total benefits the Cigarmakers' International Union paid 23 per cent.; the Iron Molders' Union, 15 per cent.; and the United Brotherhood of Carpenters and Joiners, 12 per cent.

The principal unions not affiliated with the above are the brotherhoods of Locomotive Engineers, Locomotive Firemen, and Railroad Trainmen, the Bricklayers' and Masons' Unions, the Stone Masons' International Union, and the Western Federation of Miners.

GREAT BRITAIN. During the past three years trade unions in Great Britain have been passing through a period of rapid growth. The number of separate unions in 1909 was approximately 1200, with an aggregate membership of 2,406,746, an increase of almost one-half million in three years. The greatest percentage increase was in the textile trades, due to the organization of the female operatives. Women and girls now constitute about one-twelfth of the entire trade-union membership, about 85 per cent. of them being in textiles, 70 per cent. in the cotton industry alone. There have been considerable increases in the number of union workmen among those engaged in railroading, in mining, in metal working, in the engineering, clothing and printing trades, and in shipbuilding. The British unions are steadily increasing the use of arbitration and conciliation in the settlement of trade disputes. The resulting relative infrequency of strikes and lockouts has enhanced the financial strength of the unions. The financial reserve of the 100 principal unions, including more than 60 per cent. of all union members, amounted to \$28,000,000, or about \$20 per member, as compared with \$12 per

member ten years ago. These unions have spent \$30,000,000 during the past three years. Of this \$7,000,000 was for unemployed benefits; \$14,000,000 for other insurance benefits, as sick, accident, payments, pensions, and funeral grants; and \$2,500,000 for strike benefits. The meeting of the out-of-work or unemployed benefits is becoming a serious financial problem. They reached the maximum of \$3,270,000 in 1904. These payments have averaged 23 per cent. of trade-union expenditures during the past ten years, while previously they never rose as high as 20 per cent. of the total, even in the worst years. There has resulted an active movement for the granting of state subsidies to unions paying unemployment benefits, the Trade Union Congress being about equally divided on the proposition. See UNEMPLOYMENT.

The General Federation of Trade Unions held its 10th annual conference at Blackpool in July. It includes 131 affiliated societies with 693,998 members. The main object of this body is to increase the fighting and bargaining strength of constituent unions. To this end it pays benefits into the treasury of any such union engaged in a strike or lockout. Thus the strike of the cotton mill operatives late in 1908 cost the Federation \$600,000. During the year ending March 1, 1909, it dealt with 638 disputes involving 55,000 workers.

The Trade Union Congress was held for one week in September at Ipswich. There were represented 195 unions with 1,701,000 members; the delegates numbered 495, including 33 members of the House of Commons, 195 members from the Miners' Federation and 49 union weavers, four of whom were women. The resolutions of this Congress furnish instructions to its Parliamentary Committee in the House of Commons. A resolution for "a citizen army free from military law in times of peace" was rejected; so also a resolution to establish a labor daily in London at a cost of \$750,000. Among those adopted were those condemning the marketing of prison-made goods; calling upon the government to appoint a Minister of Labor; demanding the prohibition of the export of "black-legs" or strike-breakers to other countries during trade disputes abroad; approving the government's schemes for labor exchanges and insurance against unemployment, but disapproving government subsidies to trade unions granting unemployed benefits; requesting the reduction of the age-limit for old-age pensions to 60 years and the abolition of existing disqualifications; favoring woman suffrage; and requesting an investigation of industrial insurance against accidents, sickness and invalidity; and approving the proposed budget. Compulsory arbitration was rejected. At the same time and place the Women's Trade-Union League, claiming 200,000 members, held sessions. On December 5 the Parliamentary Committee of the Trade Union Congress issued a manifesto declaring intense hostility to the House of Lords and demanding its abolition.

The judicial decision rendered in December, 1908, in the case of *Osborne vs. the Amalgamated Society of Railway Servants*, declaring that a trade union is not competent to maintain representatives in Parliament by means of compulsory levies on its members, and considered by trade unions the most important since the famous *Taff-Vale* decision, was upheld by the House of Lords on December 21, 1909. The

unions have instituted a system of voluntary contributions for the support of their Parliamentary representatives. At the same time the Labor party has declared its intention of introducing a bill legalizing compulsory levies for such purpose.

The Labor party, made up largely of trade unionists, in January declared for the socialization of means of production, the abolition of the half-time system (see *CHILD LABOR*), raising the school age to 16, and secular education. The convention of the Amalgamated Society of Railway Servants in October declared for the State ownership of railways and at the same time the Miners' Federation declared for the State ownership of mines. These resolutions indicate the strongly socialistic tendencies of the trade-union movement in Great Britain.

FRANCE. During the last few years the number of trade-union members has increased very rapidly, the number in 1909 being approximately one million, exclusive of the associations of government employees, as compared with 533,000 in 1900. The striking feature of trade-union activity in 1909 was its extreme aggressiveness, due mainly to the dominance of radical leaders. The central position was held by the General Confederation of Labor, which has come under the control of an extreme socialistic element, not believed to be really representative of the temper of the affiliated unions. This body, at its 1906 convention, solemnly prohibited the introduction of political activity into its policies, but nevertheless the chief aim of its officers in 1909 was to harass the government. They led in the organization of the public postal, telegraph and telephone employees into a "syndicate" under the associations law for the purpose of securing the right to strike. This was done in spite of express prohibition by the government. Two strikes of these employees, and an attempt at a general strike, followed. The government partially compromised by authorizing the formation of associations, but not trade unions with strike privileges by public civil servants in any department, but prohibited the formation of a federation of employees of several departments. Nevertheless, about December 1, over 181,000 civil employees decided to form a national federation. Many journals insisted that the government ought to repress this movement as a defiance of the state's sovereignty. Meanwhile M. Niel, the general secretary of the General Confederation, had been forced out because of his moderation during the strikes earlier in the year. This left that body fully under the control of revolutionary leaders, who are pledged to the general strike, the abolition of the employing class and the wages-system, and opposition to militarism and patriotism. The Confederation causes agitation all out of proportion to the industrial importance of its membership. Only a small proportion of French workers are in the unions, extreme radicalism keeps many workmen out, and consequently the Confederation is probably powerless to enforce its revolutionary policies. See *STRIKES* AND *LOCKOUTS*, and *FRANCE*.

The 6th International Conference of the Secretaries of Trade Union Centres, otherwise the International Secretarial, was held at Paris, August 30-31 and September 1. The date and place had been changed from Stockholm, 1910,

on account of the visit of Samuel Gompers to Europe during the summer of 1909. Since the American Federation of Labor was not affiliated with the conference, he was given a voice but not a vote. At this conference the one great principle upon which all agreed was the opposition of the laboring classes to war. The European trade unions are systematically developing this sentiment, on the ground that laboring men form the bulk of the soldiery in actual warfare, and pay off the immense national debts caused by war. The strong socialistic leanings of many European trade unions is shown by the fact that a number of delegates, including those from Belgium, Holland and Austria, were avowed socialists and spoke at length upon the socialist propaganda, even condemning trade unionism. The next conference will be held at Budapest in August, 1911. See **LABOR, AMERICAN FEDERATION OF.**

GERMANY. The 20th International Congress of Miners opened in Berlin on May 31. Delegates were present from Germany, Great Britain, France, Austria, Poland and Belgium. For an account of its decisions, see **GERMANY**, paragraphs on *History*. From latest available official sources the *Bulletin* of the New York State Labor Department for September, 1909, finds that the centralized or Social Democratic unions in Germany in 1908 embraced 60 national unions with 1,831,731 members, of whom 138,443 were women. The total receipts of these unions for the year were about \$12,136,000 and the total expenditures, \$10,500,000. The expenditures were almost 14 per cent. greater than in 1906. They included \$1,175,000 for strike benefits; \$2,000,000 for the unemployed; and \$2,125,000 for sickness. The largest unions and their membership in 1908 were: metal workers, 360,099; masons, 175,019; wood workers, 146,337; factory operatives, 136,195; textile workers, 116,403; miners, affiliated with the centralized body, 112,192, and affiliated with the Christian unions, 75,256; transport workers, 88,096. The Christian trade unions, promoted by the Catholic Church, included about 360,000 members, mostly in the Rhenish districts. The Hirsch-Dunker unions embraced about 110,000 members, most of them in Silesia and east Germany. The total trade union strength in Germany in 1908 was 2,382,401. On some propositions all of the three main bodies stand together.

OTHER COUNTRIES. The membership of trade unions in other countries as given by the *Bulletin* already referred to was as follows: Austria, 482,274, a decline as compared with 1907; Russia (1907), 246,272; Sweden (1907), 186,226 (but see **STRIKES AND LOCKOUTS**); Belgium (1907), 181,015; Australia (1907), 130,320; Hungary (1907), 130,192; Switzerland, 129,319; Denmark (1907), 90,806; Netherlands, 57,971; and Norway (1907), 39,070. See **INDUSTRIAL ARBITRATION AND CONCILIATION; WOMEN IN INDUSTRY; LABOR, AMERICAN FEDERATION OF; BOYCOTT; INJUNCTION; and STRIKES AND LOCKOUTS.**

TRANSMISSION OF ELECTRIC POWER.

The maximum voltage employed in the transmission of electric power in 1909 remained at 110,000 as established in 1908. The operating experiences at this voltage fully confirmed its practicability in connection with link suspension insulators and aluminum electrolytic lightning arresters. The economic importance of

this success can scarcely be estimated, as it points the way to the development of immense water power resources hitherto unutilized because of the remoteness of a market for the power. Confidence in the conquest of a still higher realm of electrical pressures was strengthened by the performance of a 500,000-volt experimental line at Norkopping, Sweden. These experiments indicated that the limiting voltage will be determined by the intense electrostatic field rather than by insulation difficulties.

Work was begun during 1909 in a 110,000-volt transmission line to be 300 miles in length. This line will be operated by the Hydro-Electric Commission of Ontario and is to extend from Niagara to Hamilton, Toronto, London and St. Thomas. The line is to be supported on 3200 steel towers spaced at 550 feet. Provision will be made for the transmission of 30,000 kilowatts.

The plant of the Southern Power Company at Rocky Creek, S. C., on the Wateree River, was completed and placed in operation; 24,000 kilowatts are developed at this point, the transmission voltage being 100,000. An additional plant of 18,000 kilowatts has been begun at Blacksburg and is to be completed in 1910, raising the total capacity of the system to 72,600 kilowatts. This system is the largest in the South and supplies its power largely for the driving of cotton mills. The year was an important one in the development of the water power of California. The Big Bend plant of the Great Western Hydro-Electric Company, supplying a load of 60,000 horse power, forms the first step in the work of developing 500,000 horse power, which is to be completed in the next ten years and is to form the greatest system of its kind in existence. Other important projects which were undertaken were the construction of a 30,000-horse power plant on the Rubicon, a 75,000-horse power plant on the American River and a system of plants in the Lake Tahoe district which is to aggregate 200,000 horse power. The total magnitude of the investment required for the plants now being worked out will exceed \$50,000,000.

The success of the synthetic nitrate industry in Norway has greatly stimulated hydro-electric development and power transmission in that country. At Rjukan a plant of 250,000 horse power, which is to utilize a 930-foot head in two stages, is under construction. The falls of Matre and Tyn are also being developed to the extent of 200,000 horse power. Numerous transmission projects of great magnitude were undertaken in France, Switzerland, Italy, Spain and Austria. Plans for the development of 270,000 horse power at the Victoria Falls of the Zambesi River and its transmission to South Africa at 150,000 volts have been matured.

Important progress was made in the design of the auxiliary apparatus on which the reliability of high voltage systems depends. Satisfactory aluminum cell lightning arresters for 110,000-volt lines were produced. A condenser type of insulating bushing consisting of graded layers of paper and metal foil was found very effective in producing a uniform distribution of electrostatic stress in the terminals of transformers and oil switches. Effective switches and circuit breakers were produced for 110,000-volt circuits by the use of condenser terminals.

Taken as a whole, the experiences of the year have led engineers to feel an increased sense of security in the matter of lightning protection and have strengthened their confidence in the practicability of line voltages much higher than those now in use.

TRANSVAAL. A British colony in South Africa, lying between the Orange River Colony on the south and Rhodesia on the north. Capital, Pretoria.

AREA, POPULATION, ETC. The area is 111,196 square miles. The census of 1904 showed a population of 1,268,716, including 945,498 aborigines, 23,891 other colored, and 299,327 whites. Pretoria had 36,700 inhabitants (21,161 white) in 1904, and Johannesburg, the centre of the Witwatersrand gold fields, 158,580 (83,002 white). On June 30, 1908, there were 624 schools, with an enrollment of 44,451 and an average attendance of 38,433. Pupils in secondary schools numbered 1891. The Normal College had 94 students. English is being gradually introduced into schools where the children are Dutch. The leading religious denomination is the Dutch Reformed, followed in order by the Anglican, Methodist and Presbyterian.

PRODUCTION. Only a small proportion of the land is under cultivation, and agriculture is less important than stock raising. The principal crop is corn. The live-stock, according to the 1904 census, included 52,168 horses, 546,829 cattle, 844,214 sheep, and 157,888 swine. Mining constitutes the chief source of wealth, the chief minerals being gold, diamonds, and coal; others of some importance are tin, silver, copper, and lead. The quantity and value of the chief mineral products are reported for 1907 and 1908 as follows:

Minerals	Quantity	1907 Value
Gold, oz.	6,450,740	£27,400,992
Diamonds, carats	2,062,855	2,268,075
Coal, short tons.....	2,883,423	773,649
		1908
Gold, oz.	7,056,266	£29,973,115
Diamonds, carats	2,022,687	1,549,815
Coal, short tons.....	3,012,692	794,949

About the beginning of 1909 there were employed in the gold mines 192,206 persons (180,828 on the Witwatersrand); of the total, 160,504 were colored, 19,460 white, and 12,192 Chinese. Gold-mining prospects were excellent in 1909. During the preceding year the reported profits earned by the producing companies equaled a distribution of 8.79 per cent. on the market value of the shares. The recent development in many deep mines is most encouraging, as the temperature is found to increase only one degree Fahrenheit to every 225 feet in depth. The number of persons employed in other than gold mines, about the beginning of 1909, was as follows: Diamond mines, 806 white and 7955 colored; coal mines, 420 white and 8889 colored; all other mines, 400 white and 3585 colored. There are iron and brass foundries, brick and tile works, tobacco factories, grist mills, breweries, etc.

COMMERCE AND COMMUNICATIONS. The Transvaal is included in the South African Customs Union. Imports and exports, including bullion, have been valued as follows:

	1906	1907	1908
Imports.....	£17,699,234	£15,758,944	£16,196,692
Exports.....	27,206,463	31,268,276	33,323,590

In 1907 the principal imports were: Apparel and haberdashery, £1,223,155; machinery, £1,059,032; chemicals and dynamite, £1,088,213; live animals, £1,097,260; meat, £739,834. The chief exports in 1907 were: Gold, £27,364,717; diamonds, £1,972,064; wool, £225,225; horses and mules, £156,544; skins, hides, and horns, £122,096. Imports to the value of £5,526,755 came from Great Britain.

Reports of the Transvaal railways include the lines in the Orange River Colony; the entire mileage, which is almost all state-owned, amounted to 2628 miles at the end of 1908, when 64 miles were under construction. On June 30, 1908, there were 9769 miles of telegraph wire, 26,597 miles of telephone wire, 267 telegraph offices, and 450 post-offices.

FINANCE AND GOVERNMENT. In the year ending June 30, 1907, the revenue and expenditure were £4,651,532 and £4,415,476, respectively; in 1907-8, £4,670,218 and £4,118,848, respectively. For 1908-9 the estimated revenue was £4,682,962 (£1,440,000 customs and excise, and £1,039,000 mining dues, etc.), and the estimated expenditure £4,840,962. The outstanding debt on June 30, 1908, was £28,550,000. For 1909-10 the estimates were: Revenue, £5,251,000; expenditure, £4,963,000.

On December 6, 1906, responsible government was established, with a governor, assisted by a ministry, and a legislature, consisting of the Legislative Council (15 members) and the Legislative Assembly (69 members, elected by universal white suffrage). The Governor (also the High Commissioner for South Africa) in 1909 was the Earl of Selborne; the Premier, General Louis Botha. The Transvaal is a member of the Union of South Africa.

HISTORY. The discrimination against the Asiatics of British birth under the old régime, which was one of the issues of the South African war, had been resumed by the new colonial government, whose rigorous measures in 1908, resulting in numerous arrests and deportations of resident Indians, provoked much criticism. The arrests and deportations continued in 1909. Early in the year twenty Indians were sentenced to three months' hard labor for failure to produce the required certificates, under the Asiatics' Registration act. At the beginning of March 111 Asiatics were in prison for violations of this and the Immigration act. Mr. Gandhi, the leader of the Indians, who had been imprisoned, was released on May 24. He declared that he would continue the agitation for the rights of his compatriots. In June three Indian members of a mission about to go to England to lay their grievances before the home government were arrested and sentenced to three months' hard labor. Among the many Indians undergoing punishment were men of culture and social prominence. The objection was not to the principle of restricting Indian immigration but to certain regulations imposing what were regarded as indignities, especially the rule requiring the taking out of periodically renewable licenses. During the year meetings were held in India to express sympathy with them and to protest against their treatment.

The policy of excluding Chinese labor, one of the features of the programme with which the Liberal party in Great Britain came into power in January, 1906, was nearly completed in 1909. At the annual meeting of the Native Labor Association it was announced that the Chinese had decreased by 23,393, while the native laborers had increased by 47,766. On November 30 there were only 3197 Chinese left in the Transvaal, and in the British House of Commons the Colonial Under-Secretary announced January 1, 1910, as the date for the departure of the last Chinaman. A convention was signed with the Portuguese government relating to trade with Mozambique and the recruiting of labor in that colony. The natives of Mozambique have been the main source of the labor supply for the Transvaal mines. By this convention the Portuguese government agreed to facilitate the recruiting of labor for the Transvaal. The latter provided for the repatriation of the natives at the expiry of the contract and engaged to take measures to prevent natives who left families in Mozambique from permanently settling in the Transvaal. Free trade was established between the two provinces in their own products. The agreement was to last ten years. Upon the completion of the South African Union the responsibilities of this convention were to devolve upon the new central government. The recruiting of 3000 laborers in British Central Africa for the Transvaal was allowed by the imperial government in June.

Parliament opened on June 1. The High Commissioner, the Earl of Selborne, announced measures for the restriction of betting and the publication of betting news, dealing with money-lending and lotteries, and providing for proportional representation in the municipalities. On June 2 the South African Constitution bill was passed (see SOUTH AFRICA, BRITISH). The betting law and the other measures announced by the government were subsequently enacted with some amendments. The Transvaal members of the delegation sent to London to submit the Draft of Union started on June 28. Mr. Villieu was acting Premier in the absence of the Premier.

TRASK, SPENCER. An American banker and philanthropist, died December 31, 1909. He was born in Brooklyn, N. Y., in 1844, and was educated at the Polytechnic Institute in Brooklyn and at Princeton College, graduating from the latter institution in 1866. He engaged in the banking business and became associated with Henry G. Marquand, succeeding to Mr. Marquand's business when the latter retired. He remained at the head of this banking house until his death. Mr. Trask early became associated with Mr. Thomas A. Edison in electrical development, and he served as president of the New York Edison Company for more than twenty years. He was well known as a patron of art and was a member of the Municipal Art Society of New York, and one of the founders of the National Arts Club. He was also one of the founders and president of the Board of Trustees of Teachers College, New York City, for fifteen years, and was actively interested in other educational institutions. His philanthropies included the establishment at Saratoga of St. Christina's Home, an undenominational institution for the care of children and the education of girls. Mr. Trask was

killed in a railroad collision on the New York Central Railroad.

TRINGGANU. A British possession on the eastern side of the Malay Peninsula, north of Pahang (Federated Malay States). This territory was formerly under the suzerainty of Siam, which ceded its rights therein to Great Britain by a treaty concluded at Bangkok March 10, 1909. (See SIAM.) The estimated area is stated at about 4500 square miles, and estimated population, about 115,000. The capital is Tringganu, at the mouth of the river of the same name. The industries are similar to those of Kelantan (which was also ceded to Great Britain by the treaty above mentioned), but Tringganu is less developed both industrially and administratively.

TRINIDAD AND TOBAGO. Two islands of the West Indies which together form a British colony. Area of Trinidad, 1754 square miles; of Tobago, 114. Population of Trinidad (1906) 306,830, estimated 1909, 325,194; of Tobago (1906) 20,570, estimated 1909, 18,751. Port of Spain (population 60,000), the capital, has one of the finest harbors in the West Indies. Other important towns of Trinidad are San Fernando (7610 inhabitants), Princetown (4497); of Tobago, Scarborough (1370) and Plymouth. The imports in 1908-9 were valued at £2,682,702; the exports at £2,500,195. The principal articles of export were sugar, 39,618 tons; rum, 68,723 gallons; molasses, 358,936 gallons; bitters, 27,194 gallons; cacao, 49,137,088 pounds; asphalt (from the 110-acre asphalt lake near La Brea), 133,208 tons (£151,026). There are 89 miles of railway open, and the island of Trinidad is crossed by the West India and Panama Telegraph Company's lines and by government telegraph and private telephone lines. Revenue (1908-9), £834,745; expenditure, £855,050. The public debt stood at the end of the fiscal year 1909 at £1,068,793. The Governor (1909, Sir G. R. Le Hunte) is aided by executive and legislative councils.

TRINITY COLLEGE. An institution of higher learning at Hartford, Conn., founded in 1823. The attendance in 1909 comprised 203 students, with 21 members of the faculty. The number of books in the library was 58,000 bound volumes and 36,000 pamphlets. The gifts received during the year amounted to about \$150,000. Among the changes in the faculty during the year was the appointment of Walter B. Briggs in place of W. N. Carlton, librarian, and John G. Gill in place of R. J. Ham, professor of romance languages. An additional endowment of \$500,000 was nearly completed at the close of the year. The total productive funds of the college amount to about \$1,225,000. The president is F. S. Luther, LL. D.

TROPICAL MEDICINE. Since the American occupation of the Philippines, these islands have provided a fertile field for the study of tropical diseases, and great advances in the investigation and control of these diseases have been made by the army medical organization. Dr. R. P. Strong, of the Biological Laboratory in Manila, reviews some of the work done by the Bureau of Science in certain diseases prevalent in this region. An extensive research was carried on in the laboratories into the subject of so-called tropical dysentery, which caused

more deaths among the American soldiers than any other single disease. It was found that tropical dysentery really included three distinct diseases, and that these required widely different forms of treatment. One form, amœbic dysentery, was discovered to be due to a species of protozoa, an amœba; a second, bacillary dysentery, was due to a species of bacteria known as *Bacillus dysenteriae*; and a third, catarrhal dysentery, due to the action of one of several bacteria, which produced a catarrhal condition of the large intestine. It was moreover demonstrated that these three forms of dysentery could be readily diagnosed by laboratory examinations of the dejecta. These discoveries soon placed the treatment of the disease upon an intelligent basis. The most effective treatment for the amœbic dysentery was found to consist in attacking the parasite by local applications—enemas. Bacillary dysentery was best controlled by the inoculation of anti-dysenteric serum. It was further demonstrated that the amœbic and bacillary dysenteries were usually acquired through infected drinking water, as was the catarrhal form in some instances. As the result of these discoveries, both the mortality and the amount of dysentery among Americans and Europeans were rapidly reduced. Bacillary dysentery is now very rare and amœbic dysentery is becoming less frequent. Control of this disease was obtained by educating the population to the necessity of avoiding infected drinking water and of employing only boiled or distilled water for drinking purposes.

At present there is no bubonic plague in the Philippine Islands, no case having occurred for over a year. The disease first appeared in 1900 in Manila, and only by vigorous measures was it prevented from gaining a foothold such as it had in India. The means adopted for repelling the plague were the fumigation of all vessels arriving from infected ports, and the destruction of all rats in them; rigid isolation of patients sick with the disease; wholesale extermination of land rats and their fleas; the burning, where practicable, of houses or districts where plague had occurred; and, most important of all, the immunization of people living in badly infected districts by inoculations with anti-plague serum. The latter measure succeeded beyond expectation.

Cholera, although banished on several occasions since 1902, has reappeared in the Philippine Islands, and has probably become, for the present, at least, endemic. The disease is spread partly through the water supply, but chiefly through infected uncooked foods. Flies were also shown to play a part in certain neighborhoods where unsterilized excreta of cholera patients were exposed. It was found that many individuals who had recovered from cholera carried about with them the germ of the disease in their intestines for several weeks after convalescence, and thus served as disseminators of the infection. An antitoxin was prepared in the government laboratories and was given an extensive trial in some of the smaller towns of the Philippines, with the result that in some districts the number of cases is only one-sixth as large as before inoculation was practiced.

In regard to malaria, it has been shown that nearly 50 per cent. of the native children in certain portions of the islands suffer from a latent form of this disease and furnish a constant source for the transmission of malaria

through the medium of mosquitoes. The amount of anæmia and general disability produced by malaria in the native population is enormous; in some districts over 50 per cent. of the adults show either latent or active infection. Among the white people, however, malaria is uncommon, particularly in large cities. An investigation was recently undertaken to determine the prevalence of animal parasites in the native population. The dejecta of 4106 prisoners were examined, and it was found that 84 per cent. were infected with one or more species of intestinal parasites; the most usual being the common whipworm (*Trichuris*), which was present in 59 per cent.; hookworms (*Uncinaria*) were present in 52 per cent.; 23 per cent. of the prisoners were infected with amœbas, and 26 per cent. with round worms (*Ascarides*). Numerous other parasites were found in a small percentage of cases. It was noted that if these percentages of infection obtained throughout the total native population, it would appear that no less than 5,000,000 of the inhabitants of the Philippine Islands harbored intestinal worms, and it becomes a great question as to what bearing these infections have in regard to the public health. While there is practically no evidence to show that moderate infections with whipworms and round worms exercise a deleterious effect on the health of the individual, infections with hookworms and amœbas must be looked upon as more serious, since both of these parasites are pathogenic.

Smallpox has been thoroughly stamped out, no death having been reported during the past year. Before the American occupation, in some provinces there were as many as 6000 cases a year. Over 3,515,000 people have been vaccinated in the Philippines, without one death on account of vaccination, or any case of severe infection.

The Philippine Medical School for the education of physicians in tropical diseases started in 1907 with 54 students. The course extends over five years, and it is hoped in time to provide through this school thoroughly qualified physicians to take care of the millions of people in the Philippine archipelago. At present there is on an average one physician to 21,000 of the population, or one to every 430 square miles of territory.

TRUSTS. The development of opinion favorable to alteration of the national anti-trust laws continued during 1909, though not with the prominence and volume of the preceding campaign year. In Congress, during the first two months of the year, various proposals for eliminating the defects of the existing law, securing greater publicity of corporate activities by national incorporation and inspection, guaranteeing labor unions the right to form, to combine, and to strike, and distinguishing reasonable from unreasonable restraints of trade were advanced, but none was adopted. At the special session of Congress a law taxing corporations one per cent. on their net earnings was passed. While this was not a trust measure, its necessary effect will be to introduce a greater degree of governmental inspection into the affairs of all corporations, trusts included. At the close of the year several suits testing the constitutionality of this measure were pending before the Supreme Court, it being claimed that the power of Congress to regulate commerce among the States and with foreign na-

tions could not be stretched to include manufacturing. In this view, which was supported by citations from previous court decisions, commerce means transportation, and therefore does not include elaboration of materials known as manufacturing. Near the close of the year the administration expressed favor for the plan of national incorporation.

In May the Bureau of Corporations issued part of a report on the taxation of corporations in this country. The Bureau was carrying on investigations of the tobacco, lumber, and steel industries, the concentration of water-power ownership, and the International Harvester Company.

CONTINENTAL WALL PAPER COMPANY. The decision of the Supreme Court in the case of the Continental Wall Paper Company against the Louis Voight and Sons Company was handed down February 1. The latter, an Ohio corporation in the wholesale trade, refused to pay a debt of \$56,762 owing to the Continental Wall Paper Company for goods bought, on the ground that the Continental Company was an illegal combination under the Sherman law. Evidence, including copies of agreements between the Continental and other wall-paper concerns, were submitted, showing that a combination did exist and forced purchasers to pay monopoly prices. The Court, Justice Harlan writing, upheld the contention of the defendants as to the existence of the illegal combination, and proceeded to answer the question whether such a concern could use the courts in the collection of a debt. This question had been raised in the case of *Conolly vs. Union Sewer Pipe Company*, in which Conolly had refused to pay for goods bought on the ground that the pipe company was a party to an illegal combination. In that case the Court had refused to free Conolly from liability on the ground that there was no necessary legal connection between the sale of the pipe and the alleged agreement between the pipe company and other concerns. "The combination may have been illegal and yet the sales valid." In the wall-paper case, however, the majority opinion of the Court held that a different rule obtained, owing to the fact that the agreement under which the wall paper had been purchased by the defendant was an integral part of the conspiracy which made the plaintiff a monopoly and rendered the wholesaler helpless. Justice Holmes, in a dissenting opinion concurred in by Justices Brewer, White and Peckham, declared that "the policy of not furthering the purposes of the trust is less important than the policy of preventing people from getting other people's property for nothing when they purport to be buying it." The Court was thus in the dilemma of either lending its aid to a concern tainted with illegality, or enabling another concern to get something for nothing. The decision was considered highly important as affecting the standing of combinations before the courts.

AMERICAN TOBACCO COMPANY. The case against the American Tobacco Company, in which the government in 1908 secured from the Circuit Court of the Southern District of New York a decision adjudging the company guilty of conspiracy and enjoining its operations, was before the Supreme Court at the close of the year. On December 30, Attorney-General Wickersham filed a printed brief of

268 pages in which the history of the concern was traced, its violations specifically pointed out, and an extension of the injunction so as to include the foreign subsidiary companies asked for.

AMERICAN SUGAR REFINING COMPANY. The principal prosecutions of the year were those against the American Sugar Refining Company, known as the Sugar Trust. One of these was the suit brought by the Pennsylvania Sugar Refining Company for the recovery of \$30,000,000 damages for the closing of the latter's plants. The complaint was that Mr. Adolph Segal, who owned a controlling interest in the plaintiff company, had been induced through conspiracy on the part of officers and lawyers of the American Sugar Refining Company to accept a loan of \$1,250,000, on condition that the plaintiff's plants be not operated so long as the loan remained unpaid. In June, while the case was being tried, settlement was made out of court. While the exact amount paid to the plaintiff was not made public, it was reported to exceed \$2,000,000.

In July the Federal Grand Jury used this settlement as the basis of an indictment for fraud in violation of the criminal clause of the Sherman law. The persons indicted were: John E. Parsons, for many years counsel and director of the American Sugar Refining Company; W. B. Thomas, president; George H. Frazier, Charles H. Senff, and John Mayer, directors; Thomas B. Harned, counsel for Segal when the loan was made; and Gustave E. Kissel, agent for the company in making the loan. The last two of these defendants demurred to the indictment on the ground that the statute of limitations had run in their favor, more than five years having elapsed since the closing of the Pennsylvania refinery in January, 1904.

Judge Holt of the United States Circuit Court about November 1 upheld their claim. He declared a conspiracy in restraint of trade to be but a contract or agreement and the conspiracy in their case to have ended when the refinery was closed, this being the end sought by them. The government at once took an appeal to the Supreme Court on the ground that the Sherman act uses the term conspiracy advisedly to mean something different from the words contract and combination in the same section. The government claimed that a conspiracy does not end so long as the course of action begun by the conspiracy continues, and that therefore in this case it did not end until the refinery should be opened.

The second important group of cases against the Sugar Trust were those growing out of the frauds in the weighing of imported sugar at the docks in Brooklyn. Inquiry into these frauds began in 1907 when a man named Whalley came to the Treasury Department in Washington and stated that he had been employed from 1892 to 1902 as a company weight checker, and that after the enactment of the Dingley tariff in 1897 he had, under the direction of the company's dock superintendent, used methods of reducing the apparent weight of the unloaded sugar. He was set to inquire whether similar frauds were still practiced. At the same time Richard Parr, assisted by James O. Brezinski, was sent as special agent to investigate. Whalley obtained employment from a ship owner at the unla-

ing dock. In November he reported to Parr his observation that when a truck of sugar was moved on to the scales the company's checker dropped his left hand in a peculiar way. Parr was thus able on November 20, 1907, to detect a secret spring which, through a hole in the stanchion of the scales, could be pushed in by the checker so as to rest on the end of the lever connected with the beam of the scales. This spring could be easily withdrawn when the government's weigher, who sat at the checker's right, wished to adjust or balance the scales. Each of the seventeen scales had similar holes. The government then brought a number of suits for the recovery of duty evaded by the fraudulent weighing. These suits at first covered only six years, but were later extended back to 1898. In addition to the fraudulent springs the government offered uncontradicted testimony to show that there had been systematic efforts to bribe the Treasury officials responsible for the weighing of sugar. It was shown also that, although the company had twelve checkers, six were uniformly assigned for checking and that these six received a secret bonus above their regular pay. The first case based on these frauds was decided about the middle of March, 1909, the company being fined \$134,000 and being compelled to restore to the government more than \$1,000,000 of evaded duty. Other cases were settled voluntarily, the government receiving a total of \$2,269,897 from the company. These settlements did not preclude criminal suits nor further suits for back duties if cause should develop.

The government meanwhile had made preparations for criminal proceedings against those immediately responsible for the frauds, the hope being ultimately to convict some of the officials high in the councils of the concern. Mr. Oliver Spitzer, the company's dock superintendent, was tried for bribery, but acquitted, because Parr's assistant, Brezinski, contradicted on the witness stand his own evidence before the grand jury. In May, Spitzer and the six company checkers were indicted for the frauds. Before they were brought to trial, however, a blanket indictment was returned on November 4, under which Spitzer, four of the checkers and James F. Bendernagel, cashier of the company's Williamsburg refinery, were brought to trial on November 30. While the jury was unable to agree as to Bendernagel, it found all the others guilty, Spitzer being later sentenced to two years' imprisonment. The lawyers for the defendants in this case contended that their clients merely obeyed the orders of their superiors. Other indictments against Bendernagel were pending.

On December 21 another company checker named Halligan and Ernest W. Gerbracht, general superintendent of the Williamsburg refinery, were arraigned in the Circuit Court, charged with conspiracy in the sugar-weighting frauds. Other indictments were brought against directors of the company and against the government weighers. These latter were accused of accepting bribes. Moreover the development of the various cases brought to light considerable evidence tending to show that agents of the trust had bribed the sugar samplers, the result being that duty had been paid on lower grades of sugar than those actually imported. This was declared to be a

graver fraud than under-weighing. It was expected that these revelations would lead to Congressional investigation, though it was apparent that tremendous pressure would be exerted to prevent such a step. During the entire year the new president of the company carried out a programme of house-cleaning within the concern by dropping all the accused employees and many others who had served under the Havemeyer régime. On December 15 Mr. John E. Parsons, long chief counsel and a principal director for the trust, retired from it, this being deemed the most significant step thus far taken to introduce an entirely new control.

About the middle of September the National Sugar Refining Company, whose stock is in part owned by the trust, voluntarily paid to the government over \$600,000 as preliminary settlement for unpaid duties, and the Arbuckle Brothers paid \$695,573 in full of shortages of duty on sugar between 1898 and 1907. While the National Sugar Company's affair was a direct outgrowth of the trust frauds, that of Arbuckle Brothers was the result of a searching comparison of its own books with the custom house records, in which inquiry the firm coöperated. The firm's books showed the amounts of sugar bought from importers; the custom house records showed the amounts as reported by government weighers, the amounts on which duty was paid. A difference of about one per cent. was the basis of the supplementary payment.

AMERICAN ICE COMPANY. The trial of the American Ice Company for violation of the New York Anti-Monopoly act was begun in November before Justice Wheeler of the Criminal Branch of the State Supreme Court. It continued eight weeks. The evidence consisted largely of two truck loads of the company's contract books and the testimony of numerous dealers who had attempted to carry on an independent business. The suit established the fact that since the trust acquired power many dealers operating nominally as independents were employees of the trust. The methods of the trust in controlling the ice fields in Maine and along the Hudson and its effective methods of clubbing the independent retailers into submission were brought out. The defense first pleaded the statute of limitations, but was overruled; it then attempted to have the case thrown out on the ground that ice could not be monopolized; and finally openly defended the trust as carrying on a legitimate business by legitimate methods. The jury brought in a verdict of guilty and the court levied a fine of \$5000.

On December 17 the Appellate Division of the New York Supreme Court upheld the State's application for an injunction restraining the company from doing certain alleged illegal acts, from enforcing certain contracts and from preventing competition in the ice trade within the State. It also upheld the State's requests that the company be adjudged guilty of violating the stock corporation law and that its charter to do business in the State be revoked. This case was begun in July, 1908, and the decision here given was a complete reversal of that of the lower court.

OTHER DEVELOPMENTS. The interpretation of the so-called "commodities clause" of the Hepburn railway rate act, declaring the clause constitutional, but holding that it does not

prevent a railroad from carrying coal mined or owned by a company in which the railroad owns stock, was very favorable to the anthracite coal roads. See RAILWAYS.

The International Harvester Company, known as the Harvester Trust, following a \$60,000 fine by the Kansas Supreme Court, proposed that the court or a public utility commission assume control of prices for its products sold within the State. The proposal was accepted.

The Texas anti-trust law was made more stringent by raising the possible penalty for violation from \$50 to \$1500 per day and by increasing the maximum imprisonment from five to twelve years. The Arkansas anti-trust law was upheld by the Federal Supreme Court, in February, and the State at once began numerous suits under it. For the 80-cent gas decision, see GAS.

TSETSE FLY. See ENTOMOLOGY and SLEEPING SICKNESS.

TUBERCULIN. The great interest taken in the use of this agent for diagnostic purposes is indicated by the fact that several hundred articles on the subject appeared during 1909. When a minute dose of tuberculin is introduced into the human body by any of the ways described below, either a febrile or local reaction occurs if the subject is infected with tuberculosis. The tuberculin may be introduced by injection, by vaccination (von Pirquet's test) or by instillation into the eye (Calmette's reaction). In addition there have been introduced several modifications of these methods. Moro's test consists of rubbing into a small area of the skin about 5 grains of an ointment of tuberculin in lanolin or by gently rubbing into the skin a drop of tuberculin undiluted, the finger being protected by a rubber cot. The skin of the abdomen is generally selected. A positive reaction appears in from 12 to 24 hours and consists of a general redness of the area and the appearance of a few papules. This is a modification of von Pirquet's test and is said to be quite as satisfactory. General systematic reaction is not caused, and nausea, vomiting and muscular pains are absent. Another method was used by Lafite-Dupont and Molinier, who state that they obtained a specific reaction in 68 out of 73 tuberculous patients by applying directly to the mucous membrane of the nose for 10 minutes a small tampon saturated with 1 per cent. solution of tuberculin. This reaction consists of a localized exudation at the spot, preceded by more or less congestion. The exudate dries and leaves a small yellowish crust. The reaction takes from 18 to 48 hours and subsides slowly in a week or 10 days. The test appears to be reliable and is absolutely harmless. Sato gave tuberculin internally and obtained positive results in cases having tuberculosis; 0.01 of a gram was given in a capsule, care being taken that the stomach was empty. If no reaction was had from this dose, a larger amount was given. The advantage of this method is that the test may be made without the patient's knowledge. The cause of reaction to tuberculin applications and injections is now believed to be a hyper-sensitizing of the patient by the tubercular infection, to which the name of anaphylaxis (see ANTITOXIN) has been given. This ability to react is a good

omen in prognosis, and a tuberculosis patient who cannot react has lost his ability to resist the disease. Any of these tests may bring to light a latent or quiescent tuberculous process or a condition that needs no active treatment. Negative reactions are taken to indicate an entire absence of tuberculosis. Positive reactions, especially if confirmed by more than one test, combined with suspicious symptoms, point to the presence of a tuberculous process. The greater the intensity of the reaction and the sooner it makes its appearance, the more acute is the nature of the process and the more active the fighting powers of the individual.

TUBERCULOSIS. The question of the transmissibility of bovine tuberculosis to human beings continued to excite much debate in 1909, following Professor Koch's pronouncement at the 1908 International Tuberculosis Congress that these diseases were distinct and that bovine infection was a very small factor in the spread of phthisis, a statement first made by Dr. Theobald Smith of Washington. The latest report of the Royal Commission on Tuberculosis, appointed in 1901 to inquire into the question, confirms their previous reports, which are in direct contradiction to Dr. Koch's views. The commission is of the opinion that bovine tuberculosis is communicable to man, and that a considerable amount of tuberculosis, especially in children, is due to milk containing the tubercle bacilli. The danger of milk yielded by tuberculous udders is well known, but the report indicates that the milk of cows suffering from visceral tuberculosis often contains virulent tubercle bacilli, although the udders may be perfectly healthy. Six cows were observed over a long period, and three showed obvious signs of tuberculosis, such as cough and emaciation, while the other three were apparently healthy and tuberculosis was discovered only by the tuberculin test. The milk of the three obviously diseased cows caused tuberculosis in guinea-pigs, while the milk of those in which the disease was revealed only by tuberculin failed to produce tuberculosis in guinea-pigs. Swine fed with the milk of these cows became tuberculous—an important observation, since pigs are often fed with the milk of sickly cows when it is deemed unfit for human consumption. This practice is plainly dangerous, since the pigs are eventually used as food for man. The feces of five out of six of these cows were found to contain virulent tubercle bacilli. Here is another source of infection, for in all but the best regulated farms the cleaning of the udders and quarters of milch cows is imperfect and the amount of fecal matter that finds its way into milk is considerable. While the above observations are important and suggestive and should give an impetus to the movement for obtaining a cleaner milk supply, they fail to prove conclusively that human beings are actually infected through animal sources. Pottenger, after an extensive observation of the reaction of patients with different forms of tuberculosis to human and bovine tuberculin, believes that while both human and bovine bacilli may attack man, the bovine bacilli gain a foothold only with difficulty, probably on account of the differences in the soil. Conversely, human bacilli infect cattle with difficulty for the same reason. In other words, while human and bovine bacilli are closely allied subspecies which

may have originated from a common ancestor, each has lived so long on a particular kind of soil that it develops poorly on any other. The latest contribution to the question as to the frequency of tuberculosis in man was furnished by Beitzke, who examined 1100 bodies at the Charité in Berlin, with reference to the occurrence of healed and active tuberculosis. He found that in children under 15 years of age tuberculosis is less common than in adults, involving but 27.3 per cent. of 198 children in about half of whom it was the cause of death. In 703 bodies of persons over 15 years of age, evidence of tuberculosis was found in 58.2 per cent. Therefore, Beitzke assumes that about one-half of all persons in all states of society suffer from a tuberculous lesion at some time during their lives. This is a wide departure from the startling findings made by Naegeli a few years ago that 90 per cent. of all human beings were affected, but the discrepancy may be accounted for by a difference in the interpretation of healed lesions found in the lungs and pleura.

There was no diminution of the warfare against tuberculosis during 1909. A large number of new hospitals, dispensaries and sanatoria, especially for the accommodation of tuberculosis patients, were opened during the year. Popular education was continued by means of lectures, traveling exhibitions and by teaching in the public schools. The first step toward a novel experiment in housing the tuberculous poor was taken by the purchase by Mrs. W. K. Vanderbilt of a site for the construction of three model tenements for poor consumptives, to cost \$1,000,000. They will be located on the east side of New York City and will be administered in connection with the tuberculosis clinic of the Presbyterian Hospital. Accommodations for from 375 to 400 families are contemplated, with surroundings especially favorable for consumptives. All the rooms will open outdoors, and there will be no dark halls, every apartment being entered from an outside stairway. The roof will be specially equipped, and in fact all the advantages of a sanatorium will be supplied except that the families will provide their own food.

TUFTS, FRANK LEO. An American scientist, died, as the result of an accident, on April 15, 1909. He was born in Finlay, O., in 1871, and took the degree of B. S. at Antioch College in 1891, and a post-graduate course at Columbia University. He was made a tutor in physics at that institution in 1898, instructor in 1903, and adjunct professor of physics in 1905. Professor Tufts came to his death by an electric shock while testing electric arc light wires at Bayonne, N. J. He contributed articles on physics to the *New International Encyclopædia* and the *New International Year Book*.

TUFTS COLLEGE. An institution of higher learning at Medford, Mass., founded in 1852. The students and faculty in 1909 numbered 1332. There were in the library 61,000 volumes. During the year there were received in gifts \$104,960. Among the additions to the faculty were the appointments of Arthur C. Lane, Pearson professor of mineralogy and geology. The total productive funds of the college amount to about \$1,650,000, and the income to \$225,000. The president is F. W. Hamilton, D. D., LL. D.

TUNIS. A French protectorate in Northern Africa. The capital is Tunis.

AREA, POPULATION. The area is estimated at 64,600 square miles. The majority of the natives are Bedouin Arabs and Kabyles to the number, roughly estimated in the absence of a regular census, of 1,700,000, inclusive of 60,000 Jews. The foreign population, according to the census of December 16, 1906, numbered 128,895, including 34,610 French exclusive of the military, 81,156 Italians, and 10,330 Maltese. The city of Tunis has 200,000 inhabitants, of whom 61,000 are Europeans.

There were (1905) 150 public, and 20 private, primary schools; a lycée for boys and one for girls; 2 colleges, a school of technology, and a normal school. There are also 1424 Mussulman primary schools, and a Mohammedan university at Tunis.

The Mohammedan population is under the religious jurisdiction of the Sheik-ul-Islam. The Europeans are mainly Roman Catholics. The French decree prohibiting congregational instruction to French children extends to Tunis.

INDUSTRIES. Agriculture is the principal occupation. The area (in acres) sown to principal crops, with the yield (in bushels) for three successive years, as reported to the French Chamber of Deputies, is given below:

Wheat, 1906, 93,900 acres, 1,135,080 bushels; 1907, 1,089,729 acres, 4,256,550 bushels; 1908, 1,087,258 acres, 2,837,700 bushels.

Barley, 1906, 91,428 acres, 3,149,847 bushels; 1907, 1,198,454 acres, 9,506,295 bushels; 1908, 1,099,613 acres, 6,313,882 bushels.

Oats, 1906, 84,015 acres, 2,128,275 bushels; 1907, 1,030,424 acres, 8,607,689 bushels; 1908, 1,005,713 acres, 4,905,589 bushels.

About 494,000 acres are under olive groves; 262,600 acres under cork-forests. The wine output in 1907 was 1,941,588 gallons. There are about 1,350,000 date palms in the southern part. Other products are almonds, oranges, lemons, shaddocks, pistachios, alfa grass, and henna. The number of live-stock, January 1, 1909, was reported as follows: Cattle, 158,062; sheep, 833,562; horses, 31,870; donkeys, 78,002; mules, 10,592; goats, 476,386; swine, 14,644.

The output from the mines increases steadily. In 1907 there were 32 mines in operation, copper, lead and zinc being the principal ores. Phosphate is the principal article of export, and the mines are being extensively developed.

The yield of the fisheries (mainly in the hands of Italians, Maltese and Greeks) in 1907 was as follows (exclusive of sponges): Sardines, 200,000 kilos, value 59,873 francs; anchovies, 55,000 kilos, 44,116 francs; allaches, 903,000 kilos, 212,150 francs; tunny-fish, 942,000 kilos, 291,164 francs; other fish, 1,816,000 kilos, 1,554,697 francs.

COMMERCE. The total imports for 1908 were valued at 123,028,000 francs, against 102,860,000 in 1907; the total exports, at 94,155,000 francs, against 103,361,000 in 1907. The principal articles of export in 1908 were as follows: Phosphates, 31,686,000 francs; olive oil, 13,995,000; wheat, 3,654,000; alfa, 3,071,000; live-stock 2,946,000; hides and skins, 1,616,580; tanbark, 1,298,000; sponges, 1,139,000; wine, 818,000; barley, 757,000. France is greatly in the lead among the countries of origin and destination, having about 50 per cent. of the foreign trade.

COMMUNICATIONS. There were in 1908 754

post-offices was (1907) 384; the receipts amounted to 2,296,377 francs, and the expenditure (posts and telegraphs) to 2,002,310. There are good roads extending 1750 miles. The merchant marine in 1909 consisted of one steamer (304 tons net) and two sailing vessels (151 tons). In 1908 there entered the ports of the Regency 13,140 vessels of 4,150,070 tons (3904 steamers of 3,976,482 tons), of which 2207 of 1,906,060 tons were French.

FINANCE. For the year ending April 30, 1908, the revenue and expenditures were 69,670,800 and 63,449,800 francs respectively. The revenue was derived as follows: Monopolies, 14,163,300 francs; direct taxes, 10,299,700; indirect taxes, 8,994,000; customs, etc., 5,465,300; State domain, 1,840,200; various, 2,420,500; extraordinary, 26,487,800. The expenditures were: Finance, 17,053,000 francs; public works, 5,821,400; administration, 3,589,100; posts, telegraphs, 2,158,000; instruction, 1,778,400; agriculture and commerce, 1,290,400; justice, 934,300; war, 534,500; extraordinary, 30,290,700. The debt amounted at the end of 1906, to 232,181,500 francs. Tunisian bank-notes are issued by the Banque d'Algérie. The legal coinage, similar to the French pieces, is minted in France.

GOVERNMENT. Sidi-Mohammed en Nasser, the Bey and the nominal ruler, was born July 14, 1855, and succeeded to the throne May 12, 1906, upon the death of his cousin. The heir-presumptive is Sidi-Mohammed Ben Mamoun, born August 13, 1858. The protectorate is administered by a French resident-general (1909, Gabrielle Alapetite), who is also Minister of Foreign Affairs, and a ministry of seven French and two Tunisian heads of departments, all under the direction of the French Foreign Office. Subordinate positions are filled by natives. The army of occupation (which is provided for in the French budget) numbers 20,360, including 703 officers. The Bey's guard (nominally the Tunisian army) numbers about 600 officers and men. The French gendarmerie numbers about 150, and the Regency maintains a civil and rural police force.

TUNNELS. Tunnel construction in 1909 involved work in schemes of urban or interurban rapid transit, as in Paris, New York, Philadelphia, Boston, and other cities, or the construction of railway tunnels under rivers or harbors, for entrance into large cities, as well as the piercing of mountains, as was the case in the great Alpine Tunnels, on the Trans-Andine Railway, and the tunnels in the Sierra and Rocky Mountains of the United States.

DETROIT RIVER TUNNEL. At the end of the year the sub-aqueous section of the twin tube tunnel for the main line of the Michigan Central Railroad under the Detroit River, was practically completed. This section is 2625 feet in length and consists of two parallel circular tubes, with an interior diameter of 20 feet, placed together with a distance apart of 26 feet 4 inches on centres. The tubes are formed by a continuous exterior shell of $\frac{3}{8}$ -in. steel plate, 23 feet 4 inches in diameter, enclosing a lining of concrete 20 inches thick, which is reinforced by

first excavating by dredging a trench in the river into which the sections of the steel tubes built on shore were sunk and fastened successively one to another. A form was built around the steel shell sections when they were assembled on the shore, and into this the concrete was deposited from scows. The sections were then pumped out, and the lining of the tubes was taken up, the work being arranged so that the operation was continuous and the various processes would be taken up simultaneously. The first ten sections were each approximately 550 tons in weight, and 262.5 feet long, the eleventh or closing section was 130 tons in weight, and was 64.5 long.

HUDSON TUNNELS. The second pair of tubes of the Hudson and Manhattan Railroad Company under the Hudson River, were thrown open to regular train service on July 19, and trains were operated from the terminal at Cortlandt and Church Streets in Manhattan, to the Pennsylvania Station in Jersey City. Later the land tunnels to the Erie and Lackawanna Stations were put in service. The Northward extension towards 33d Street, New York, was making progress during the year, and plans were developed for the extension to the Grand Central Station. The twin tubes under the Hudson River were of the same design and construction as those constructed for the new part of the Hoboken tube. They are formed of segmented cast steel, being bolted together in the rear of the excavating shields, as the latter were advanced. The lower half of the tube is lined with concrete and the tunnels have a clear diameter of 15 feet.

PENNSYLVANIA TUNNELS. While the tunnel system of the Pennsylvania Railroad for its Greater New York Terminal was practically completed during 1909, these tubes were not ready for use. See **ELECTRIC RAILWAYS.**

GUNNISON TUNNEL. The completion of the Gunnison Tunnel, which was the main engineering feature of the Uncompahgre Valley Irrigation project, was one of the important works of 1909. The tunnel is 30,582 feet in length, laid on a uniform grade of 2.02 feet per thousand, with a flat bottom 10 feet in width, and with sides which batter outward at the top 6 inches in 10 feet. The roof is arched with a span of 11 feet, and a rise of 2½ feet, giving a total cross-section area of 122 square feet, or 100 square feet of water-carrying section. The amount of water delivered through the completed tunnel, lined with concrete, was estimated at 1300 sec. feet. The work was carried on by force headings driven from the two portals and a main shaft. The tunnel presented many considerable difficulties, and in the course of its prosecution fifteen lives were lost.

LOETSCHBERG TUNNEL. Work on the Loetschberg tunnel progressed actively in 1909, and by December of that year, 7600 yards, out of a total of about 15,000 yards, or 8½ miles were finished. Excavation on this tunnel commenced in October, 1906, and in July, 1908, an accident occurred in which twenty-five men were killed. The contract called for the completion of the work in Sep-

tember, 1911, and when finished it will be the third longest tunnel in Europe, being surpassed in length only by the Simplon, 12.25 miles, and the St. Gotthard, 9.25 miles. The Loetschberg tunnel is a portion of a line connecting Western Switzerland and France with Italy, by passing through the Bernese Alps. It is a double track tunnel, lined with concrete 1½ feet in thickness, and 26 feet 3 inches in width within this lining. It is 20 feet in height from the level of the rails to the centre of the roof arch, and has a ventilating tunnel on its western side. In 1909, 3500 workmen were employed, and 3 8-hour shifts were making a daily advance of about 18 to 21 feet.

TRANS-ANDINE TUNNEL. The Andes Summit Tunnel was holed through on the last week in November, and represented one of the most important works on the Trans-Andine Railway. It is a single track tunnel, about four miles in length, and for much of its length is timbered. It is located on the Chilean side of the international boundary, and was the last link in the Trans-Andine Railway. It was expected that the track construction through the tunnel would be completed in March, 1910.

Among other Swiss tunnels is that at Lichten-sieg, on the Bodensee and Toggenburg connecting line, which has a length of two miles. It was pierced through early in April of 1909. At the end of the year the last section, amounting to 2 miles 16 chains, of the Jungfrau railway was finished, so that it could be opened in the following year. The Tauern railway which contained a notable tunnel through the Alps at Gastein, 27,985 feet in length, and which represented an outlay of some \$7,000,000, was opened on July 5, 1909, although the tunnel had been pierced through in 1907.

OTIRA TUNNEL. The Otira tunnel on the Midland Railway that was being constructed by the government of New Zealand, was a notable example of the year. It is about 5½ miles in length, and runs in a straight line, with a grade of 3¼ per cent., penetrating hard slate, and passing under the Otira Gorge. The work is carried on by two headings running from the portals, and both are driven by compressed air drills worked by electric compressors driven by water power in the vicinity. The tunnel driving has been carried on by three shifts of workmen, who make 6 feet advance with each blast. It was reported that about 80 feet per week of 6 days had been made at each portal.

TURFAN. A ruined city of Chinese Turkestan, especially noteworthy for its archaeological remains and for the literary and linguistic fragments found there. The site and its neighborhood has been thoroughly explored by Prussian expeditions, and the publication of the material discovered is practically controlled by the Prussian Academy of Sciences, in whose *Sitzungsberichte* for 1909, will be found four papers upon new fragments. Of these, peculiar interest attaches historically to four Mongolian letters of an official nature, since these are precisely dated in years corresponding to 1326, 1398, and 1408, thus affording at least an approximate date during which this region was still flourishing. Another text, hitherto supposed to be Uiguric, has been shown by F. W. K. Müller to be really Sogdian, of which Iranian dialect only few fragments survive, and these practically solely in Turfan manuscripts. The text of this

particular text agrees, almost word for word, with a Chinese inscription found in the same site at Kara Balgassun. A number of fragments, in Turkish and Pahlavi, all Manichæan in subject, have also been published, and special interest attaches to one of these in that, although Manichæan, it contains an account of how the Buddha came to renounce the world (following the well-known story), while another text appears to be a translation from some Syriac work, which was probably apocryphal in nature.

Besides these German contributions, the Russian Academician, Salemann, has given, in Hebrew transcription, the texts already made accessible, with German translations, by Müller in his *Handschriften-Reste in Estrangelo-Schrift aus Turfan* (Berlin, 1904), the advance in this *Manichæische Studien* (part 1, St. Petersburg, 1908), lying in the editor's full vocabulary and grammatical sketch, which is of special value to students of Pahlavi and other Iranian dialects.

TURKEY, or THE OTTOMAN EMPIRE. A monarchy in southeastern Europe, southwestern Asia, and northern Africa. The capital is Constantinople.

AREA AND POPULATION. The estimated area in square miles and the estimated population, are stated as follows:

	Area	Population
Europe	65,367	6,130,000
Asia:		
Asia Minor	193,600	9,089,000
Armenia and Kurdistan..	72,000	2,471,000
Syria	114,600	2,890,000
Mesopotamia	131,700	1,398,000
Arabia	170,300	1,050,000
Total in Asia	682,200	16,898,000
Africa:		
Tripoli and Benghazi....	405,800	1,000,000
Total	1,153,300	24,028,000

These figures do not include the nominal dependencies or tributary states of Egypt, Crete, Cyprus, and Samos (qq. v.). In European Turkey, Turks, Greeks, and Albanians are almost equally numerous and constitute about 70 per cent. of the population; about one-half of the total is Mohammedan, the other half being made up of various Christian sects and some Jews. In the Ægean islands, about nine-tenths of the inhabitants are Christians. Mohammedans constitute the great majority in Asiatic Turkey, and in Tripoli and Benghazi almost the entire population. The larger cities, with approximate population, are: Constantinople, 1,106,000; Salonika, 120,000; Adrianople, 81,000; Smyrna, 201,000; Damascus, 200,000; Bagdad, 145,000; Aleppo, 127,000; Beirut, 119,000; Jerusalem, 80,000; Brussa, 76,300; Kaisarieh, 72,000; Kerbela, 65,000; Mosul, 61,000; Mecca, 60,000. Primary instruction, which is nominally compulsory for Mohammedans, is entrusted to the clergy attached to the mosques. Secondary schools are not numerous; in a few, English or, more frequently, French is taught. Christian schools are established where the Christian population is comparatively strong. Schools of all kinds throughout the empire are said to number about 36,200, with upwards of 1,331,000 pupils.

gross produce harvested. This class of property is known as "miri." The tax-gathering is farmed out. The title to property known as "vakuf," is held not by the state, but by some religious or charitable institution ("pious foundation"), from which it is inalienable. This form of property is usually urban, nearly all of Constantinople being held under this tenure. There is also simple freehold tenure, but in comparatively small amount. Early in 1909 it was reported that a commission had been appointed to study the whole system of land tenure, with the object of bringing about a greater degree of uniformity. The empire contains much exceedingly fertile soil, but agricultural methods are primitive; and any incentive to the development of agriculture is hindered by the tithe system, and by custom dues on produce exported from one province to another. The principal crops are cereals, tobacco, cotton, olives, almonds and other nuts, and many kinds of fruit, especially figs and grapes. Olive oil and wine are important products; the average annual output of the former is about 66,000 tons; the estimated wine production in 1908 (including Cyprus) was about 39,600,000 gallons. Silk cocoons are produced, especially in the vilayet of Adrianople, whose production in 1908 amounted to 2,555,300 pounds. Figures for the total agricultural production of the empire are not available. In Asia Minor, goats are numerous, and mohair is a leading product.

MINERALS. In general, mining is little developed, although many of the provinces, particularly in Asia Minor, are rich in minerals. Copper is mined near Trebizond and, on a large scale, near Diarbekir. The extensive coal deposits of Heraclea, on the Black Sea, are exploited in a small way. Other minerals produced to a greater or less extent are chrome ore, silver-lead ore, zinc, manganese, antimony, emery, petroleum, and salt. Some gold, mercury, arsenic, and iron also occur.

MANUFACTURES. Manufactures, which, in the Western sense, are few and unimportant, include silk, cotton, and woolen fabrics (especially in Damascus), rugs and carpets (especially in Anatolia), wine, spirits, and tobacco products. There are a considerable number of grist mills, and a large amount of brass-turning and beating of copper into utensils for household use.

COMMERCE AND SHIPPING. The year ended February 28, 1906, is the last for which complete trade statistics are available. In that year the imports and exports were valued at £T31,366,021 and £T19,672,370 respectively (the Turkish pound is worth \$4.40). In the fiscal year 1897 imports were valued at £T21,359,706, and exports £T15,428,458. The principal imports in the fiscal year 1906 were valued in pounds Turkish as follows: Cotton piece goods, 4,090,000; sugar, 2,640,000; yarn, 1,470,000; flour, 1,134,487; rice, 1,077,243; linen, 1,045,055; petroleum, 1,037,198; coffee, 946,570; woolen stuffs, 895,609; cashmere, 639,820; timber, 388,418; drugs, etc., 357,495; iron goods, 350,737; leather, 341,946; hides, 312,053. The leading exports were: Silk cocoons, £T1,105,992; mohair, 914,000; figs, 902,279; coffee, 889,004;

000. Imports from and exports to the countries commercially most important, were as follows in 1905-6, in thousands of pounds Turkish:

	Imports	Exports
Great Britain	10,992	6,320
Austria-Hungary	6,516	2,137
France	2,669	4,811
Italy	2,446	996
Russia	1,820	594
Germany	1,325	1,228
Belgium	986	488
Egypt	926	.....
Rumania	795	400
Persia	734	655
Netherlands	597	681
Greece	561	544
Bulgaria	467	760
United States	288	492

The foregoing figures do not include the trade in tobacco. In the fiscal year 1906, the imports comprised 2867 kilos of tobacco, 17,796 kilos of snuff, 6,926,631 cigars, and 1,237,404 kilos of tumbak; the exports amounted to 18,110,646 kilos sent to foreign countries, besides 3,465,958 kilos sent to countries within the empire. In 1907 the reported imports at Constantinople were valued at \$142,170,000.

In 1905-6 there entered and cleared at the ports of Turkey 47,265 steamers, of 44,257,892 tons, and 129,796 sailing vessels, of 2,293,977 tons. In 1909 the merchant marine consisted of 110 steamers, of 69,440 tons, and 936 sailing vessels, of 202,609 tons.

COMMUNICATIONS. Railways open to traffic in 1908, were as follows: In Europe: Oriental Railways, 786 miles; Constantinople-Salonika,* 317; Salonika-Monastir,* 136; total, 1239 miles; in Asia: Haidar Pasha-Angora,* 358 miles; Eshkishehr-Konie,* 283; Mudania-Brussa, 25; Smyrna-Cassaba,* 165; Alasheir-Afion-Karahissar, 156; Smyrna-Aidin, 320; Konieh-Eregli-Persian Gulf* (Bagdad Railway), 125; Rayak-Aleppo,* 295; Beirut-Damascus, 96; Mersina-Adana, 42; Jaffa-Jerusalem, 54; Haifa-Deraa, 105; Damascus-Medina, 750; total in Asia, 2774 miles; grand total, 4013 miles. The lines above which are marked with a star have a kilometric guaranty from the government; the guaranties paid in 1906 amounted to £T691,102; and in 1907 £T753,191. Work is progressing, but slowly, on the Bagdad Railway, and the line from Damascus to Medina is being pushed on toward Mecca. The revolution of 1909 aroused business activity in many quarters, one result being the projection of various new railway lines and extensions. In 1906, there were 28,890 miles of telegraph line, with 49,200 miles of wire and 1017 offices. Post-offices in 1907 numbered 1312. In most of the large coast towns foreign post-offices are maintained.

BANKS. The Imperial Ottoman Bank, with a capital of £T11,000,000, had on October 31, 1907, a note circulation of £T1,313,100 and cash on hand £T2,567,100. The impetus given to general business enterprise by the radically changed political conditions in 1909 was particularly manifested in banking activity. New banks were founded and branches of existing





banks were established in various commercial centres. Of first importance is the organization at Constantinople of the Ottoman National Bank, to the presidency of which an Englishman was appointed at the request of the British government; whence it appears not only that British influence will be paramount in the management of the bank, but that it will undertake in some degree the development of the large industrial and commercial resources of Turkey, under the new progressive régime. This bank has an initial capital of £T3,000,000, with power to increase to £T10,000,000. It is expected that agencies will be established in the provinces. Also in 1909 a Russian bank was opened at Constantinople; branches of the Bank of Athens were established at Trebizond and Samsoun, and a branch of the Deutsche Orient Bank at Mersina; the Bank of Salonika increased its capital; and it was decided to establish a land-mortgage bank.

FINANCE. Up to 1909 the government did not publish statements or estimates of revenue and expenditure. The first official budget was published that year for the fiscal year 1910, and it showed an estimated revenue and expenditure of £T25,079,062 and £T30,539,545 respectively. The principal items of estimated revenue were: Direct taxes, £T13,377,229 (including tithes, 5,383,102; land tax, 2,435,764; payments exempting from military service, 1,289,612; tax on live-stock, 1,699,349); customs, 3,946,224; government monopolies (salt, tobacco, gunpowder, etc.), 2,228,425; government industrial enterprises, 1,308,628; stamps, etc., 1,094,146; tribute of Egypt and Cyprus, 871,316. The larger estimated expenditures were: Army, £T8,711,993; public debt, 8,294,262; finance, 2,723,234; gendarmerie, 1,800,714; interior, 1,491,742; navy, 1,228,840; commerce and public works, 1,064,123; posts and telegraphs, 692,899; Damascus-Mecca Railway, 689,251; public instruction, 660,527; justice and worship, 651,917; civil list, 522,570; customs (collection charges, etc.), 514,838; bureau of the Sheikh-ul-Islam, 485,433; agriculture, forests, and mines, 345,597; foreign affairs, 218,310; Parliament, 215,346.

On June 30, 1908, the debt stood as follows: Loans secured on Egyptian tribute, £T18,803,446; loans secured on administered revenue, 75,195,982; various loans, 10,749,420; total, £T104,748,848. In addition there were the Russian war indemnity, amounting to £T24,513,000 in 1898 (after which year the annual installment of £T350,000 was not paid), and a debt of £T273,494 for the Beirut-Damascus Railway. By the agreement between Turkey and Russia, the latter relinquished in 1909, 40 out of 74 annuities of £T350,000. In June, 1909, a 4 per cent. loan of £T4,758,700 was subscribed in London, Paris, and Berlin.

NAVY. The Turkish navy includes many obsolete and otherwise non-effective vessels, and some of those classed as effective are hardly to be so regarded. However, a number of old ships have recently been reconstructed and are in fairly good condition. An entire naval reorganization has been begun under the direction of Rear-Admiral Douglas Austin Gamble, of the British Navy. The effective fleet in 1909 included the following vessels: 2 small battleships, aggregating 13,827 tons; 4 armored corvettes, 10,406 tons; 2 protected small cruisers, 7050

tons; 1 torpedo vessel, 900 tons; 2 torpedo dispatch boats, 1400 tons; 5 torpedo-boat destroyers, 890 tons; 22 torpedo boats, 1612 tons; 2 submarines, 596 tons; total, 40 vessels, of 36,681 tons. In addition there were various transports, dispatch boats, etc. Vessels under construction in 1909 were: 2 armored cruisers, aggregating 14,273 tons; 4 protected cruisers, 11,300 tons; 2 torpedo vessels, 1550 tons; 11 torpedo boats, 1120 tons; total, 19 vessels, of 28,243 tons. A programme of construction was announced in 1909, comprising 6 battleships, 12 destroyers, 12 torpedo boats, 6 submarines, 24 gunboats, 2 mining vessels, 4 monitors, 2 training ships, 1 hospital ship, and 6 transports. This programme contemplates an expenditure of about \$80,000,000, and is consequently viewed with considerable skepticism.

ARMY. Military service in Turkey is compulsory, all Mussulmans being liable to service, but Christians and certain sects are exempt upon payment of a tax. Universal service with the intention of doing away largely with the exemptions was a feature of the constitution of July 24, 1908. During 1909 the army was in process of reorganization, and it was determined that the new scheme adopted for this work should go into effect in March, 1910. This work of organization and training was under the direction of General von Goltz, of the German army, with a staff of 16 German officers. A number of radical reforms were anticipated, and it was believed that the division of the empire into seven army corps districts (Constantinople, Adrianople, Salonika, Erzinjan, Damascus, Bagdad, and Sana), and two independent divisions (Medina and Tripoli), would be supplanted, and a number of divisions organized, each consisting of three regiments (nine battalions and a training battalion).

In 1909 the effective peace strength was estimated at 700,620, of which 583,200 were infantry, 55,300 cavalry, 54,720 artillery (174 field and 22 mountain batteries). The Nizam or active army contained 320 battalions of infantry, 203 squadrons of cavalry, and 248 (6-gun) batteries of artillery, making a total of about 260,000 with a reserve of 120,000. The Redif contained 374 battalions of infantry and 666 supplemental and incomplete battalions and 48 squadrons of cavalry, and was organized in two classes. This with the Mustafiz landsturm, would probably give the Turkish army a war strength of over 1,000,000. Mention should also be made of various irregular troops, most important of which was the "Hamadieh," a tribal cavalry raised in Anatolia among the Kurds, and in 1909 amounting to 266 squadrons.

GOVERNMENT. The fundamental laws of the empire are based on the precepts of the Koran. A constitution proclaimed by Sultan Abdul-Hamid II. in November, 1876, and suspended about a year later, was restored on July 24, 1908, in consequence of the prevailing discontent. The constitution provides for a Parliament of two houses, the Senate (members of which are to be appointed by the Sultan from those who have rendered distinguished service to the state), and the Chamber of Deputies (members chosen indirectly by manhood suffrage, without distinction of race or creed). The chief executive authority is vested in the Sultan (assisted by a cabinet), who is also the head, or supreme

caliph, of the Mohammedan church (Sunnite). His representative in ecclesiastical affairs is the Sheikh-ul-Islam. The Sultan is Mohammed V., who was born November 3, 1844, the son of Sultan Abdul Medjid, and succeeded to the throne April 27, 1909, on the deposition of his elder brother, Abdul-Hamid II. His cousin Yousseuf Izzedin, is heir-presumptive, born October 9, 1857, the son of Sultan Abdul Aziz. The ministry at the end of 1909, was constituted as follows: Grand Vizier (Premier), Hussein Hilmi Pasha; Sheikh-ul-Islam, Sahib Mollah; Minister for Foreign Affairs, Rifaat Pasha; Interior, Talaat Bey; War, Salih Pasha; Marine, Arif Hikmet Pasha; Finance, Djavid Bey; Commerce and Public Works, Haladjian Effendi; Public Instruction, Nafl Bey; Pious Foundations, Halil Hamada Pasha; Mines, Forests, and Agriculture, Aristidi Pasha; President of the Council of State and Minister of Justice, Nedjmeddin Bey.

HISTORY

DOWNFALL OF THE KIAMIL MINISTRY. The first session of Parliament under the new régime opened on December 17, 1908. The Young Turk movement, directed by the Committee of Union and Progress, had culminated in the revolution of July 24, 1908, with complete success. The chief issues before the new government were the settlement of the questions of compensation with Austria-Hungary for the annexation of Bosnia-Herzegovina, and with Bulgaria for the loss of Turkish suzerainty through the assertion of Bulgarian independence. The protocol with Austria-Hungary was signed by the two governments on February 26, whereby Austria-Hungary was to pay Turkey the sum of £T2,500,000, and in the same month an agreement was reached as to the Bulgarian indemnity, whereby, through the intervention of Russia, the Turkish demands were satisfied. The negotiations in the Bulgarian affair were formally concluded on April 19. (For details of both these matters, see the article **BALKAN QUESTION**.) Another important issue was the status of Crete, now that the time for the withdrawal of the four protecting Powers from the island was approaching. This will be discussed in a later paragraph (see also **CRETE**, paragraph on *History*). In January, the Grand Vizier Kiamil Pasha, after submitting to Parliament a review of Imperial affairs, received a unanimous vote of confidence. He soon showed, however, that he was in sympathy with the Liberal Union, which had developed in opposition to the Committee of Union and Progress. He accused the Committee of planning a *coup d'état*, and the deposition of the Sultan, which they in turn denied. He thereupon dismissed the Ministers of War and Marine, who were partisans of the Committee and appointed their successors. The Committee took prompt action and Kiamil was required to give an account of his arbitrary acts before Parliament. He urged his constitutional rights and deferred his appearance. Great indignation was expressed at this, not only in Parliament, but among the officers of the army and navy. Parliament voted "no confidence" by an overwhelming majority. Meanwhile Kiamil resigned and was succeeded by Hilmi Pasha. It was thus proved that the Committee of Union and Progress continued paramount.

THE COUNTER-REVOLUTION. During February

and March there were signs of bad discipline in the army. On February 23 the Minister of War, in a note addressed to the commanding officers, referred to the disrespect shown by subalterns to their superiors, and condemned officers for their activity in political affairs. A number of comparatively slight incidents showed the development of the mutinous spirit. At the Yildiz it was necessary to remove an Arab and an Anatolian battalion on account of insubordination. In the first week of April the government became aware of a formidable movement among the troops at the capital and took some defensive measures. These were ineffective, however, and on April 13 a serious mutiny or counter-revolution broke out. Its immediate occasion was the order of the government on April 12 that the troops must, if necessary, fire upon civilians and even priests. It was, however, the outcome of the reactionary movement which had been going on for some months. The Young Turks, represented by the Committee of Union and Progress, were the party in control of the government. They were men of education and advanced views, who went too fast in their Europeanizing measures for a considerable portion of the people. They shocked prejudices and traditions, especially in religious matters, and many of the officers of the army showed a contempt for religious observances, while the rank and file were thorough Mussulmans. Agitators took advantage of the situation to foster discontent among the men. There were many theological students (*softas*) in Constantinople, and they were very active in appealing to the religious prejudices of the troops. The work of reaction was also aided by the numerous lackeys and hangers-on of the Palace, who naturally wished the overthrow of the present régime, fearing they might lose their places. Money was said to have been distributed freely among the troops before the mutiny. On April 7, Hassan Fehmi, editor of the *Serbesti*, an Opposition paper which had sharply criticised the Committee of Union and Progress, was assassinated, and the crime was attributed to the Committee by its enemies. This further worked on the spirit of the mutineers. Early in the morning of April 13 a body of mutinous troops under an Albanian corporal and a member of a reactionary organization, gathered near St. Sofia, seized the Parliament building and the telegraph office, cut the wires and killed two officers belonging to the Committee. The loyal troops of the Committee in Constantinople were too few to offer an effective resistance. The mutineers demanded the dismissal of the Grand Vizier, Hilmi Pasha, and of the president of the Chamber, and of the Minister of War. The Grand Vizier resigned that afternoon. Nazim Pasha, Minister of Justice, was killed, and the Minister of Marine was wounded. Other battalions, especially the Salonika rifles, joined them. The mutineers were also recruited by the troops coming from Scutari and Pera. The commander of the loyal troops had been on the point of marching against them, but he was forbidden by the Grand Vizier, as resistance seemed hopeless.

The victory of the mutineers was complete. A new cabinet was announced on April 14, under Tewfik Pasha, as Grand Vizier, and after the installation of the new government the troops returned to their quarters. Edhem Pasha was made Minister of War. The mutineers killed a number of their officers from among those

who had come from the military schools—the special objects of their hatred. Many of the Young Turks left the city. The commander of a cruiser that had threatened to bombard the Yildiz was dragged from his carriage, while passing through the streets, and murdered under the windows of the Palace. On the whole, however, the mutiny was accompanied by little bloodshed. It was largely a rising of the troops against their superior officers, though employed by the reactionaries for their own ends. The idea was spread among the troops that the Sacred Law was in danger, and their cry was not only for the restoration of the constitution, but for the Sacred Law.

THE SUPPRESSION OF THE MUTINY. The Committee of Union and Progress had been taken by surprise, and their overthrow seemed complete, but they developed unexpected energy and resources. The second and third army corps at Adrianople and Salonika remained loyal. They were ready for action and under excellent discipline. The authorities acted with astonishing promptness. Within four days of the mutiny, the Macedonian troops had been concentrated at Tchataldja, a day's journey from Constantinople. There was no haste or confusion in the movement, which was carried out with remarkable precision and rapidity. On the arrival of the Salonika, troops under Husni Pasha at San Stefano, a parliamentary deputation was sent to them. The reply to the deputies' inquiry as to the intention of the military was, that they would remain until liberty was restored in Constantinople, but that they would do nothing to provoke a civil war. On April 19, Husni Pasha issued a proclamation declaring that the mutiny had disgraced the nation, and commanding the officers and soldiers in the city to return to duty, to take oath on the Koran that they would obey their superior officers, and henceforth to keep out of politics. A second proclamation declared that the constitution had been overthrown by the reactionaries, that the army had come to defend it, but would punish only those who had instigated the crime, and would respect the life and liberty of Ottomans and foreigners. The officers and crews of most of the warships took the oath of obedience as commanded. The prompt action of the Macedonian army overawed the mutinous troops in Constantinople, and no effective means of offering resistance were taken. Before dawn on April 24 the loyal troops entered Constantinople. They encountered resistance from some of the barracks, especially that of Taxim in the heart of Pera. On two occasions the mutineers treacherously displayed the white flag, and then fired upon the advancing party. In some instances it was necessary to resort to artillery fire in order to reduce the barracks. By the afternoon, however, the resistance was at an end. Shevket Pasha, the general-in-chief of the Macedonian troops, estimated the number of troops on his side killed and wounded at 300. The number of casualties among the mutineers was probably much greater. On April 26 Shevket Pasha, having trained the guns on the Palace and concentrated his troops at all approaches, received the surrender of the Sultan's personal guard. Some of the mutineers' leaders were shot, and the rank and file were conveyed to distant garrisons. On April 27 the National Assembly met with closed doors and a *fetva* was read, reciting the crimes and

calamities of the reign of Abdul Hamid, including the massacres, corruption, and the destruction of the Sacred Books. The question was then submitted to the Assembly whether he should be deposed or should voluntarily abdicate. The Assembly unanimously voted for deposition. A deputation then waited on Abdul Hamid, who begged that his life and the life of his children should be spared, and that he might be sent to the Cheragen Palace, or, if that could not be done, that he might remain for the present at the Yildiz. He was placed, however, on April 28 aboard a special train for Salonika, and he was there confined under guard at Villa Allatini. Meanwhile, the deputies had waited on his brother Reshad Effendi, and informed him that he had succeeded (April 27). The guns were being fired to salute him as Sultan at the time that Abdul Hamid was informed of his deposition. The new Sultan succeeded under the title of Mohammed V. The Tewfik Cabinet resigned on May 5, and Hilmi Pasha again became Grand Vizier. Shevket Pasha had declared the city in a state of siege. He had been the soul of the movement for the suppression of the revolt, and for a time was the most powerful man in the State, virtually a dictator. The victory of the Macedonian troops demonstrated the high morale of both officers and men, and the profit they had derived from the introduction of methods based on the study of European models. On May 1 the Sultan announced that the objects of the government would be to guarantee liberty, justice and equality to all, and to improve the army and navy and the administration in all departments. On May 2, thirteen leaders of the mutiny were hanged, and other executions followed on May 4. On May 3, Shevket Pasha declared that henceforth the army should be independent and that any officers who continued as members of political societies should be dismissed from service. On May 10, Mohammed V. was invested with the sword of Osman amid solemn ceremonies.

ARMENIAN MASSACRES. Violent outbreaks occurred in Asia Minor, while these events were taking place at the capital. The reactionaries had been busy in the provinces, and a wave of religious fanaticism swept over a number of cities in which the Armenian element was considerable. The Armenian Christians were massacred in great numbers at Adana and other cities. Among those killed were two American missionaries, Maurer and Rogers, who were endeavoring to aid the victims. British, French, German and Italian warships were despatched to cities on the coast for the protection of the citizens. The reports as to the number killed were conflicting. According to the British Vice-Consul at Mersina, who reported on April 21, 2000 were killed at Adana, including 600 Moslems. A dispatch dated May 2, however, adds that 6500 were killed in the city of Adana and that from 30,000 to 35,000 in the province were left destitute. Further reports charged that terrible atrocities had been committed upon women and children. The official Turkish statistics issued in June, gave the number of buildings burned as 4823, including 386 belonging to the Moslems. Adana was the centre of the uprising. Early in May it was said that 4000 troops were engaged there in looting and burning, and in terrorizing the inhabitants; that the authorities were suspected of permit-

mously passed for the appointment of a parliamentary commission to investigate the circumstances of the rising, for the creation of a court-martial at Adana, and for a relief fund of £T20,000. There was, however, a tendency among the Turks to minimize the affair and to lay the blame on the Armenians, who, indeed, in certain instances, appear to have been indiscreet and provocative. Among foreign Powers, especially in France, the need of caution was felt in order not to embarrass the new régime. When the subject came up for discussion in the French Chamber in May, M. Pichon declared the government's confidence in the new Turkish ministry, and urged that nothing be done that could hamper it or discredit it with the people. The Armenian Patriarch resigned in September as a protest against the alleged partiality of the punishment of those involved in the massacres and especially complaining that four Armenians who were, in his opinion, innocent, had been executed. He declared that the number of Moslems sentenced (40) was far too few, that the punishments were too mild, and that the persons who were really responsible had not been brought to justice. In July the report of the court-martial at Adana condemned the incapacity of the Valis and blamed the local officers. It said that fifteen had been hanged, that 800 deserved death, 15,000 a sentence to hard labor for life, and 80,000 to imprisonment, but urged a general amnesty for the purpose of effecting a reconciliation. There was much criticism of the government's laxity toward those responsible for the massacre. See below, *Parliament and Other Events*.

THE CRETAN QUESTION. On July 13 the four protecting Powers notified the Turkish government that on July 26 they would withdraw their garrisons from Crete and would station four warships in Cretan waters to protect Moslem rights and maintain the *status quo*. This action was taken in spite of the previous request on the part of Turkey that the withdrawal of the troops should be deferred. The Powers notified the Cretans at the same time and also warned the Greek government that any action that could be regarded by Turkey as provocative would, in the end, be injurious both to the Cretans and to the Greeks (see CRETE and GREECE, paragraphs on *History*). The evacuation took place without disturbance at the date appointed. Then followed the incident of the hoisting of the Greek flag, described in the article on Crete (q. v.), and the prompt intervention of the Powers, which landed bluejackets on the island, who hauled down the flag. Both before and after this event there was strong popular feeling in Turkey in favor of vigorous measures to preserve Turkish authority over Crete. Meetings were held at Salonika and Monastir, and warlike messages were sent to the central authorities of Constantinople. On August 5 the Turkish government addressed a note to Greece demanding positive assurance that the Greek government did not intend to annex Crete. Turkey issued a circular to the Powers in the second week of November urging that the status of Crete be settled at as early a date as possible in such a manner as, while

would be maintained.

CONDITIONS IN THE PROVINCES. While the disturbances in Armenia were taking place, reports came of trouble in Bagdad, Macedonia and Albania, and of a famine in Anatolia. There were signs of revolt in Albania in May, and some fighting took place there in the following month, when it was reported that the government would endeavor to disarm the Albanians. In Macedonia generally, however, the population was comparatively free from the attacks of the bands, and although some thirty assassinations took place during the early summer they were mostly of a political nature. A bill was introduced in Parliament dealing with the dispute as to the ownership of churches and schools in Macedonia. It provided that the party having the firman which permitted construction should have possession of the schools and churches without regard to its numerical strength. This would turn over nine-tenths of the contested churches and schools to the Patriarchist minority instead of the Exarchist majority. The Bulgarian Exarchate protested against the bill, demanding that all Bulgarian churches and schools should be turned over to the Bulgarian communities.

Early in the year there were reports of a rising, 25,000 strong, in Yemen under the new Mahdi. In April the Arabs of Basra were reported to be in revolt, firing on the steamships of the Tigris and causing a suspension of traffic. Great energy was shown by Nejmeh-Din Bey in putting down the revolt of the Arabs, which at one time threatened a general rising throughout the delta of the Euphrates. Some of the Yemen tribes surrendered in July. In August a Parliamentary commission, appointed to investigate the affairs of Yemen, reported in favor of a scheme allowing the tribes a considerable measure of autonomy. There were later reports, however, of continued disturbance in the region. There was also trouble in the Dersin district, which suffered from the raids of the Kurds, but a military expedition was dispatched against them and most of the chiefs submitted.

PARLIAMENT. After a session of nine months Parliament was prorogued for three months on August 29. Its record may be briefly summarized as follows: Parliament was confronted by the complex and difficult task of reorganizing the organic law and the administration to conform to the principles of the new régime. During the session 668 motions concerning changes in the constitution and the organic law were submitted and of these 158 were passed and sent to committees; 73 bills were submitted and of these 53 were passed, the rest being still in committee; 10,000 petitions were presented, of which 4500 were granted. There was much criticism of the Parliament on the part of the progressive element as being too conservative. One of the chief measures passed was the Law of Associations which forbade the formation of clubs or associations on a racial basis and contained other provisions as to religious associations and trade unions. The new found liberty as to public gatherings, speech and the press

tended to degenerate into license and it was soon found necessary to impose restrictions. Besides the Law of Associations, a Press Law was drafted after the counter-revolution of April 13, containing regulations that were criticised as too severe. These were somewhat modified by the Senate but were still believed by many to be too strict. Another measure that aroused criticism was the law restricting the privileges of foreign advocates in the Turkish courts. It provided that, while a foreign lawyer may plead in the mixed commercial tribunals, he may not plead in the ordinary civil commercial courts unless he has knowledge of the Turkish language and can produce a certificate signed by ten Ottoman advocates that he will practice with perfect honesty within the Ottoman Empire for a period of not less than three years. The law, which was not so radical as its original advocates desired, was still regarded as dangerous and unfair and it was hoped that it would be subsequently modified. An important question before Parliament was that of admitting Christians and Jews to military service from which they had hitherto been excluded, and Parliament, though hesitating to approach a question which dangerously involved religious prejudice, finally drafted two laws on the subject, but they were somewhat indeterminate and the matter could not be regarded as settled. In May, Shevket Pasha announced that henceforth Christians would be admitted to the army up to the limit of 25 per cent. He took this measure while awaiting Parliamentary action in the matter. One of the final acts of Parliament was the passage of a measure of amnesty to the prisoners who had escaped or been set free when the new constitution was proclaimed. Another important decision was the rejection of the finding of the Adana court martial, the ordering of a new investigation and the grant of £100,000 for the rebuilding of the devastated districts. The Grand Vizier then issued a proclamation exonerating the Armenians from the charge of a conspiracy against the present government. The second session of Parliament opened on November 14 and Ahmed Riza was elected President. The budget for 1910 showed a deficit, on account of diminished receipts, of £4,437,807. Negotiations were begun with Bulgaria regarding the extradition of criminals and the status of Bulgarian subjects born in Turkey.

OTHER EVENTS. For an account of the project of Mesopotamian irrigation, see **MESOPOTAMIA**. In August the Council of Ministers approved the plans for the extension of the Bagdad Railway via Alexandretta, the new section to run from Bulgurlu to Aleppo through the Taurus and Amanus Mountains—a difficult piece of engineering. Toward the end of the year a new company of foreign bankers was formed for the continuation of the railway under a German director. On July 23 the anniversary of the establishment of the constitution was celebrated with a military display at the "Hill of Liberty." An important event in the history of the Turkish finances was the first meeting of the Advisory Board of the Finance Ministry, which was held on September 21. It comprised the British, French and Italian representatives in the Macedonian Financial Commission, three Turkish members, and two special technical and financial advisers. Its

functions were executive as well as advisory and its decisions were to be regarded as binding. It was to be consulted in all financial matters. German officers were called in to aid in the reorganization of the Turkish army, and their duties were completed in October. The reorganization of the navy under the British adviser, Rear-Admiral Gamble, was still going on. On December 11-12 26, Moslems were executed for complicity in the Adana massacres. The amount of treasure found in the Sultan's Palace and appropriated by the State was said to come to \$5,000,000.

TURKS AND CAICOS ISLANDS. Two groups of islands, over 30 in number, geographically a part of the Bahamas, but forming a dependency of the British colony of Jamaica. Only eight are inhabited. Total area, 169 square miles. Population some 6300, about one-third being in Grand Turk. Government schools provide free elementary instruction. The principal industry is salt raking, about 1,800,000 bushels being produced annually. Imports and exports in 1908, £24,426 and £24,798 respectively, against £27,660 and £23,817 in 1907. Revenue and expenditure in 1908, £7404 and £7430; in 1907, £7391 and £7119. Commissioner (at Grand Turk) in 1909, Frederick H. Watkins.

TURPIE, DAVID. United States Senator (Democratic) from Indiana from 1887 to 1899, died April 21, 1909. He was born in Hamilton county, Ohio, in 1829, and graduated from Kenyon College in 1848. In 1849 he removed to Indiana and began the practice of law. He was elected to the State Legislature in 1852, and on the expiration of his term was appointed Judge of the Common Pleas Court. In 1856 he was made Judge of the Circuit Court. He was subsequently elected again to the legislature, and served as Speaker of the House. In 1863 he was elected to the United States Senate to fill an unexpired term, and from then until 1887 he practiced law. In the latter year he defeated Benjamin Harrison for the United States Senatorship, and was renominated and reelected in 1893. From his retirement from the Senate to his death, Senator Turpie was practically an invalid.

TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE. An institution for the education of negroes at Tuskegee, Alabama, founded in 1880 by Booker T. Washington. The attendance for 1908-9 was 1494 and there were 167 members of the faculty. The institute in addition to classroom and technical work at the institute proper, carries on what may be designated as extension work. This includes the annual negro conference with its numerous branches, the publication of a weekly farm paper, *The Farmers' Monthly Institute*; a short course in agriculture; farm demonstration work, supported by the United States government and the General Education Board; a town night school and a town day cooking school; a county Ministers' Institute; ministers' night school; weekly mothers' meeting; supervision of the County and State Fair; a National Negro Business League, and a general effort to cooperate with county officials to improve the county schools. Gifts and endowments were received during the year from all sources to the amount of \$201,483. The endowment fund in 1909 was about \$1,600,000.

TWEEDMOUTH, EDWARD MARJORIBANKS, Second Baron. An English Cabinet officer, died September 15, 1909. He was born in 1849 and was educated at Harrow and Christ Church Oxford. In 1874 he became a barrister of the Inner Temple. His political career began in 1880, when he entered the House of Commons as the Liberal member from Berwick. He retained this seat until 1894. From 1893 to 1894 he was parliamentary secretary of the treasury. In the latter year he succeeded to his title and was made Lord Privy Seal and Chancellor of the Duchy of Lancaster. These offices gave him a seat in the Cabinet formed by Lord Rosebery. He went out of office with his party in 1895 and did not reënter official life for ten years, when he was appointed First Lord of the Admiralty in the Campbell-Bannerman Cabinet of 1905. The most conspicuous incident in Lord Tweedmouth's political career was in connection with the correspondence carried on by him with Kaiser Wilhelm in 1908 in relation to the British navy. It became known that he was in correspondence with the Kaiser and the report greatly inflamed the English press. The correspondence had to do with the English naval programme and a letter from the Kaiser to Lord Tweedmouth was alleged to have contained hostile criticisms of Sir John Fisher, Senior Lord of the British Admiralty. The Kaiser's letter undertook also to allay the fears of German invasion with the assertion that the German navy was scarcely one-fifth as great as that of England. This episode was greatly magnified by the English press. The chief indignation was expressed not so much at Germany as at Lord Tweedmouth. He undertook to explain his part in it in the House of Lords. He admitted having received the letter, but asserted that it was private and personal. With the death of Campbell-Bannerman in June, 1908, came the reorganization of the Cabinet and to Lord Tweedmouth was given the empty honor of Lord President, and the following September he retired altogether from the Cabinet. It is believed that his death was hastened by his mortification over the incident which ended his political career.

TYPHOID FEVER. The fact, recently discovered, that certain individuals, themselves in good health, may harbor and excrete large numbers of typhoid bacilli over a number of years, and thus become permanent sources of infection, has given a different aspect to the problem of typhoid dissemination. This phase of the subject received a large share of attention from investigators in 1909 and many remarkable carriers have been discovered in various parts of the world. Debré quotes statistics which show that of 451 cases of typhoid in women in Germany, 80 per cent. were domestics more or less connected with the cooking of the meals. Rondet has recently observed a family epidemic in which typhoid developed in a series of cases as the persons ate food prepared by the members of the family caring for the sick and those who had recovered from the disease months before. This explains the family epidemics among the poor. In wealthy households the cooks are responsible for the epi-

demically discovered that one of the employees had typhoid six months previously and was still harboring the bacilli. On her removal the epidemic ceased. No means have as yet been found to rid carriers of the bacilli, which find lodgment in the intestine, bile-ducts and gall-bladder. One specimen of bile showed 20,000,000 typhoid bacilli to the cubic centimetre. These facts have necessitated a considerable modification of the theory that all epidemics of typhoid fever are due to polluted drinking water. While there is no doubt that sewage-contaminated water has played and still plays an important part in the transmission of typhoid fever, there is no longer a tendency to minimize other causes. It has been noted in many communities that after an infected water supply has been purified or replaced by a purer source, the residuum of typhoid fever was still very great. In most cities of the United States, even after a pure water supply has been secured, the death rate has remained, according to Jordan, at least five or six times as high as in European cities of similar rank. This persistence is now explained by the typhoid bacilli carrier and by the important rôle that flies and other insects may perform in transmitting the disease. (See INSECTS AND THE PROPAGATION OF DISEASE.) Another explanation no doubt lies in the fact that a certain proportion of cases can be accounted for by milk infection and by the ingestion of sewage-infected shell fish. The problem of milk infection again reverts to the bacillus carrier, who by failure to cleanse his hands from his own fecal discharges before handling milk, infects in a peculiarly disgusting way the product under his care. The question is therefore one of hand disinfection, both in the dairy and in the kitchen.

TYRRELL, GEORGE. An English Roman Catholic priest of the Jesuit order, died July 15, 1909. He was born in Ireland and received the greater part of his education at Trinity College, Dublin. He was a Protestant in faith, but shortly after his graduation he became a Roman Catholic and took the vows of the Jesuit order. For twelve years prior to 1906 he was recognized as one of the most daring and brilliant of Jesuitical writers. In the latter year he published in an English journal an article which was deemed heretical by the Superiors in the Society. They demanded a recantation, and on his refusal Father Tyrrell was obliged to retire from the order. He was one of the bitterest assailants of the Pope's Encyclical on Modernism, and as a result of an adverse criticism published under his own name in the *London Times*, in 1907, he was excommunicated by order of the Pope.

TYSSEN-AMHERST, WILLIAM AMHERST, Baron Amherst of Hackney. An English nobleman and bibliophile, died on January 16, 1909. He was born in 1835, and was educated at Eton, and Christ Church, Oxford. He sat in the House of Commons from 1880 to 1892. In the latter year he was made a peer. He accumulated a magnificent library, which, in 1906, on account of financial difficulties he was obliged to sell. His remarkable collection of

osities.

UGANDA PROTECTORATE. A dependency of Great Britain in East Africa, including, besides Uganda proper, Unyoro, Busoga, and other native states westward to the Belgian Congo and northwards to the Egyptian Sudan. Area, 117,681 square miles; population variously estimated at from 2,000,000 to 4,000,000. Mengo is the native capital, but the British administration has its headquarters at Entebbe. The principal exports are ivory, skins, chillies, coffee, and cotton. The cotton export has increased from 858 cwt., valued at £1069, in 1905-6, to 23,051 cwt., valued at £41,225, in 1908-9. Imports and exports (1906-7), exclusive of goods in transit, specie, and government stores, £222,588 and £116,001, respectively, against £206,181 and £108,204 in 1905-6. Length of telegraph lines, 458 miles. Steamers ply the inland waters, and some connect with the railway of the East Africa Protectorate at Port Florence on Victoria Nyanza. Revenue and expenditure (1907), £96,772 and £191,502; grant-in-aid (1907-8) £85,000, 1908-9 £95,000. The present King (Kabaka) of Uganda, Daudi Chua (born 1895, grandson of the celebrated Mutesa, and son of Mwanga, whom he succeeded in 1897), is under a native council of regency. Governor and commander-in-chief (1909), vacant. Vigorous measures taken by the administration against the fatal sleeping-sickness, which threatened to depopulate the country, have resulted in a great reduction of the mortality; industrial conditions are improving and trade has increased.

UNCINARIASIS. See **HOOKWORM DISEASE.**

UNEMPLOYMENT. The extent and methods of relief of unemployment have received almost world-wide discussion during the past few years. In this country the distress due to unemployment was much less severe than during 1908. Reports of the Massachusetts and New York labor departments show that the extent of unemployment declined quite steadily during the year. In New York, reports from 192 representative trade unions with 89,000 members, about one-fourth the total trade-union membership for the State, showed a decline in the proportion of unemployed members from 29.3 per cent. in January to 17.4 per cent. in June. About 90 per cent. of this idleness was due to lack of work. In Massachusetts the proportion of unemployed in 777 unions with 105,000 members was 10.6 per cent. in November, 1908; 10.3 per cent. in January, 1909; 9.5 per cent. in March, 6.4 per cent. in June, and 4.8 in September. Slightly less than three-fourths of the idleness in September was due to lack of work or materials.

It is only very gradually that the American public has awakened to the importance of the problem of unemployment in connection with poverty and the various evils caused thereby. The opinion is still too widely held that unemployment, in the sense of enforced idleness for lack of work, is extensive only during periods of acute industrial depression. But Mr. Scott Nearing, from a study of data covering a con-

ditions of the American Statistical Association, September, 1909.)

ENGLAND. The problem has long been a matter of public concern in England, and an attempt was made in the Unemployed Workman's act of 1905 to deal with the matter on a large and systematic basis. Since that date, however, industrial conditions have been such that acute distress from lack of work has been unavoidable. The winter of 1908-9 was especially memorable in this regard and indications were that the winter of 1909-10 would be little less so. On February 17 the Royal Commission on the Poor Laws and Relief of Distress issued a report on its three years of hearings and deliberations, a document destined to attain classical rank among public reports. (See **GREAT BRITAIN**, paragraphs on *History*.) The Local Government Board in September issued a report showing that the number of persons relieved under the act of 1905 during the year ending March 31, 1909, was 136,589, representing 376,043 dependents, as against 54,613, representing 150,971 dependents, in the previous year. The number in 1909 was 31 per 1000 of population of the areas concerned, as compared with 14 per 1000 in 1908. The loans for public relief works sanctioned by this Board from August 1, 1908, to January 9, 1909, were £2,328,247, as compared with £223,602 for the same period the previous year. At the meeting of the Trade Union Congress at Ipswich in September a resolution favoring public subsidies to trade unions granting unemployment benefits was defeated by 715,000 to 712,000 votes. In October the Central (Unemployed) Body for London reported that the cost of work done under public relief activities would have cost 30 per cent. less if done by ordinary labor. It recommended that the act of 1905 be repealed as inadequate; it favored a system of national labor exchanges, supplemented by plans for migration and emigration, training institutions and labor colonies. For an account of Mr. Winston Churchill's Labor Exchange measure, see **GREAT BRITAIN**, paragraphs on *History*.

In this connection it may be noted that the Poor Law Report attributed the success of the German labor exchanges to the assistance rendered by public bodies; the association on committees of both employers and employees; the strict exclusion of all relief work; postal, telegraph and telephone facilities; and preferential railway fares for men seeking work.

GERMANY. A conference of representatives of a number of principal cities held at Cologne was not able to reach any agreement as to the most practicable plan of municipal insurance against unemployment. The plans now in practice in continental cities are various, and experience with them has not been sufficiently long to make final judgment possible. The conference seemed to develop the opinion that the time is not yet ripe for a systematic solution of the problem.

NEW ZEALAND. In the fall a bill was introduced into the legislature providing for a system of unemployment insurance, based, like that introduced by Mr. Winston Churchill in the English House of Commons earlier in the year,

FRANCE. An International Conference on Unemployment is to be held at Paris in September, 1910. Its object is to establish closer relations among those interested in the fight against unemployment. It is probable that a permanent organization will be effected. Subjects for discussion are unemployment statistics, labor exchanges, and insurance against unemployment.

UNION COLLEGE. An institution of higher learning at Schenectady, N. Y., founded in 1795. The attendance in 1909 was 346 students and 32 members of the faculty. There were in the library 40,000 volumes. During the year \$110,000 was received in gifts. In the autumn of 1909 Charles Alexander Richmond, D. D., was inaugurated president, to succeed the Rev. G. Alexander, D. D. The total productive funds of the college amount to \$770,000 and the total income to \$85,000.

UNITARIANS. A religious denomination, the distinctive feature of which is the acceptance and adoption of the principles of freedom and progress in religion. In 1825 representatives of the Unitarian churches in the United States united in establishing the American Unitarian Association, which is the administrative body of the church, with headquarters at 25 Beacon Street, Boston, Mass. No official figures are gathered of the membership of the denomination, but in 1909 it was approximately as follows: Communicants, 70,542, churches, 461, and ministers, 541. There are a large number of conferences, unions, alliances and leagues organized for the purpose of distributing Unitarian literature and propagating Unitarian thought throughout the world. In Great Britain there are some 375 ministers and 372 congregations. The roll of membership in the Unitarian Church of Hungary is 80,000. Divinity schools are maintained at Cambridge, Mass., Meadville, Pa., and Berkeley, Cal. The denomination has eight academies under its auspices. Among the organizations are the National Conference of Unitarians and other Christian Churches, the Unitarian Sunday School Society, the Young People's Religious Union and many Unitarian clubs and ministerial associations. Active missionary work is carried on in many points among the Icelandic, Norwegian and Swedish immigrants in the United States. Field secretaries are employed in New England, New York, Chicago, Colorado and on the Pacific Coast. Among the Unitarian periodicals are the *Christian Register*, published in Boston, the *Unitarian*, published in New York, and the *Pacific Unitarian*, published in San Francisco. The president of the Association is Rev. Samuel Elliott, and the secretary, Rev. Lewis G. Wilson.

UNITED BRETHREN IN CHRIST. A religious denomination which had its beginning among the Germans of Pennsylvania under the preaching of Philip William Otterbein. The denomination held its first formal conference in Baltimore in 1789 and its first general conference at Frederick, Maryland, in 1800. The number of communicants in 1909 was 285,414. The organized churches numbered 3806, the itin-

China and the Philippines, and also carries on domestic missions. The total expenditures for missions in 1909 amounted to \$114,154. The church devotes much attention to higher education. Among its institutions of higher learning are the following: Bonebrake Theological Seminary, Dayton, O.; Otterbein University, Westerville, O.; Lebanon Valley College, Annville, Pa.; Westfield College, Westfield, Ill.; Leander Clark College, Toledo, Iowa; Campbell College, Holton, Kan.; York College, York, Pa.; Shenandoah Collegiate Institute and School of Music, Dayton, Va.; Philomath College, Philomath, Ore., and Central University, Indianapolis, Ind.

UNITED EVANGELICAL CHURCH. A Protestant religious denomination, founded in 1894 as a result of the division in the Evangelical Association. In 1909 the church numbered 71,768 communicants, 243 local preachers, and 526 itinerant preachers. In the Sunday schools of the denomination were 96,816 scholars. The Church Extension Society has general charge of establishing new churches. Missions are sustained in China. The total missionary contributions in 1909 were \$123,744. The denomination maintains a publishing house at Harrisburg, Pa., where are published *The Evangelical*, the official organ of the church, and many other publications. Among the educational institutions under the auspices of the denomination are Albright College, Meyerstown, Pa.; Dallas College and La Creole Academy at Dallas, Oregon, and Western Union College at La Mars, Iowa. The denomination has two bishops. Its general form of government is that of the Methodist Church.

UNITED PRESBYTERIAN CHURCH. A religious denomination formed in Pittsburg, Pa., on May 26, 1858, by a union of the Associate and Associate Reformed churches. The membership in 1909 was 160,803, of whom 27,662 were in the foreign missionary fields. There were 1118 ministers and 1089 churches. In the 1375 Sabbath schools were 143,835 scholars and 14,391 officers and teachers. There were 970 Young People's Societies with a membership of 33,911. The contributions from the Sabbath schools for the year amounted to \$166,218. The total contributions for all purposes for the year amounted to \$2,455,035, of which \$846,842 was for salaries of ministers; \$862,380 for congregational purposes; \$541,855 for the boards of the church, and \$248,553 for general purposes. The church sustains six colleges in the United States, one in Assiut, Egypt, and one in the Punjab, India. There are theological seminaries at Allegheny, Pa., and Xenia, Ohio. The property value of its institutions is \$917,700. Missions are carried on in Egypt, India and the Sudan; there are missions also among the negroes in Virginia, Tennessee, Alabama and Mississippi. The leading papers of the denomination are the *United Presbyterian* and the *Christian Instructor*, and there are several other periodicals issued from the publishing house which is in Pittsburg, Pa.

UNITED STATES. The total area belonging to or under the jurisdiction of the United

Hawaiian Islands, 544; Porto Rico, 546; Panama Canal Zone, 474; Guam, 210; Tutuila Group, Samoa, 77. The total population, including Alaska and Hawaii, but excluding Porto Rico and the Philippines, was, according to the census of 1900, 76,303,387. According to the Federal estimate of 1909 the population of the entire territory of the United States was 88,566,034. The population of Continental United States was 88,262,446.

AGRICULTURE. The statistics in regard to agricultural products will be found in the article **AGRICULTURE** and under the respective heads of the various products. The agricultural production of the separate States will be found under the proper headings in these States.

INDUSTRIES. For a general discussion of the various industries, see **MINERAL PRODUCTION, IRON AND STEEL, COTTON, SUGAR, RAILWAYS, SHIPBUILDING, SILK, TEXTILE MANUFACTURING, BOOTS AND SHOES, LEATHER, STRIKES AND LOCK-OUTS, TRUSTS, etc.**

FOREIGN COMMERCE. The foreign commerce of the United States in the calendar year 1909 exceeded in value that of any earlier year with the single exception of 1907. The imports were larger than in any previous year, while the exports fell slightly below those of 1906 and 1907.

The imports aggregated \$1,475,612,580 and the exports \$1,728,203,271, of which approximately \$25,000,000 consisted of foreign merchandise exported, and the remainder, \$1,700,743,638, of domestic products.

Imports free of duty were larger than in any earlier year in the history of our commerce and aggregated \$700,000,000, against a little over \$500,000,000 in 1908 and \$638,000,000 in 1907, the high-record year prior to 1909. Dutiable imports amounted in 1909 to about \$780,000,000, and were larger than in any preceding year, except 1907, when the total was \$787,000,000. This total of \$1,475,000,000 of imports in the calendar year exceeds by over \$50,000,000 the highest import record of any earlier year, that of 1907.

Of this \$1,475,000,000 of imports, about \$525,000,000 is raw material for use in manufacturing and \$260,000,000 partially manufactured material for further use in manufacturing; making the total value of manufacturers' materials imported nearly \$800,000,000, or more than half the entire imports of the year. The imports of the year, classified according to their prospective uses, were: Raw materials, for use in manufacturing, \$529,682,778; partially manufactured materials for further use in manufacturing, \$257,867,335; manufactures ready for consumption, \$342,895,720; foodstuffs in a crude condition, \$172,295,073; foodstuffs partly or wholly manufactured, \$162,135,053, and miscellaneous products, \$10,736,042. In each of these classes except finished manufactures the total of the year is larger than that of any earlier year, while in finished manufactures the record falls about \$40,000,000 below that of 1907, when the total value of finished manufactures imported was \$380,000,000. The trade with the non-contiguous territories of the United States for the year aggregated about \$172,000,000, of which about \$78,000,000 con-

for 1909 is greater than in any preceding year. From Alaska the shipments to the United States aggregated about \$13,500,000 and the shipments from the United States to Alaska, about \$17,750,000. From Hawaii the shipments to the United States amounted to about \$41,750,000, and the shipments from the United States to Hawaii about \$19,000,000. From Porto Rico the shipments to the United States were about \$27,000,000 and the shipments from the United States to that island, \$25,675,000. From the Philippine Islands the merchandise sent to the United States during the year aggregated about \$13,500,000, against a little over \$9,000,000 the year before, and the merchandise sent to those islands, \$14,000,000, against about \$10,000,000 in 1908.

The exports were \$1,728,203,271, against \$1,752,835,447 in 1908, \$1,923,000,000 in 1907, \$1,798,000,000 in 1906, and \$1,626,000,000 in 1905, having thus been exceeded by the export figures of only three years, 1906, 1907 and 1908.

Over half of the year's exports underwent a process of manufacture before leaving the country. The reports for the full year show \$467,945,050 worth of manufactures ready for consumption; \$253,199,100 worth of manufactures for further use in manufacturing, and of foodstuffs partly or wholly manufactured, \$285,067,172, the total of these three classes forming over 55 per cent. of the total exports of the year. The value of exports of raw material was reported for the year at \$571,868,068, and that of crude foodstuffs, \$114,883,247. In both classes of foodstuffs the total for the year is low, lower, indeed, than at any time in the last decade; while, on the other hand, raw materials for use in manufacturing show a larger total in value than in any earlier year, their unusually large value of exports being due, in part, however, to abnormally high prices of cotton, the chief factor in this group of "raw materials for use in manufacturing."

All the grand divisions and practically all of the important countries shared in the increased imports. From Europe the imports showed an increase from \$548,382,652 in 1908, to \$763,704,486 in 1909; from North America, an increase from \$224,623,181 to \$277,863,210; South America, from \$132,431,434 to \$193,202,131; Asia and Oceania, from \$195,283,552 to \$223,254,724; and those from Africa, an increase from \$15,153,268 to \$17,588,029. On the other side of the account, exports to Europe show a falling off of \$64,000,000, when compared with those of last year; North America, an increase of \$17,000,000; South America, an increase of \$4,000,000; Asia, a fall of \$17,000,000; Oceania, a decline of about half a million; and Africa, a decline of about one million dollars; exports to America, as a whole, thus showing an increase, and those to Europe, Asia, Oceania, and Africa, a decrease.

All of the principal ports share in the increase of imports, the Atlantic ports showing a gain from \$686,000,000 to \$943,000,000; the Gulf ports an increase from \$45,000,000 to \$53,000,000; the Mexican border ports, an increase from \$8,000,000 to \$15,000,000; the Pacific ports from \$62,000,000 to \$75,000,000; the northern

Canadian border ports a loss of about \$500,000; the Pacific ports a loss of \$22,000,000; and the northern border and Lake ports, a gain of \$24,000,000.

Trade between South America and the United States in 1909 exceeded all previous records, with a total of \$276,711,178, against \$209,029,069 in 1908, and \$129,000,000 in 1899. Of the total, \$193,202,131 is the total imports from, and \$83,509,047 that of exports to South America. Imports from South America in the calendar year 1909 showed an increase of nearly 40 per cent. over those of 1908, and the full year's record exceeded by \$25,000,000 that of 1906, until 1909 the banner year in exports from South America. The South American countries participating most largely in the import trade to the United States, in the order of importations, are Brazil, Argentina, Chile, Venezuela, Colombia, Peru, Uruguay, Ecuador, Dutch Guiana, British Guiana, French Guiana, Paraguay and Bolivia. Coffee is the largest item of importation from South America, the value imported in the first ten months of 1909 being nearly \$54,000,000, against \$45,000,000 in the same months during the preceding year. The articles next in importance are India rubber, \$32,000,000 in 1909, against \$17,000,000 in 1908; hides of cattle, \$13,000,000, compared with \$6,000,000 in 1908; wool, \$8,000,000, compared with \$3,500,000 in 1908; cacao and cocoa, over \$3,500,000, practically the same value as in 1908; goat skins, \$4,000,000, against less than \$3,000,000 in 1908; copper pigs, bars, etc., \$3,500,000, a decrease of about \$200,000, compared with 1908; copper ore and matte, \$2,000,000, compared with \$1,000,000 in 1908. South America furnishes about eight-ninths of the coffee supply of the United States. The total imports of coffee into the country during the first ten months of 1909 were 845,000,000 pounds, of which 745,000,000 came from South America, Brazil's share alone being 649,000,000 pounds. Brazil is the largest single source of supply for rubber imported into the United States, furnishing nearly one-half of the 73,000,000 pounds imported in the first ten months of 1909, the remainder being chiefly from Mexico, Africa, and the East Indies. Exports to South America in 1909 approximated the high-record total of \$86,000,000, made in the calendar year 1907. Exports to Brazil increased from \$14,000,000 to \$16,000,000; those to Argentina, from \$28,000,000 to \$29,000,000; to Chile, from \$4,500,000 to \$5,500,000; to Uruguay, \$2,750,000 to \$3,333,333, and those to Venezuela, from \$2,000,000 to a little over \$2,000,000. Manufactures supply by far the larger proportion of exports to South America, while raw materials and foodstuffs supply most of the imports from that continent. Exports of illuminating oil to South America showed in the ten months of 1909 a total of \$6,000,000; boards, etc., \$5,750,000; agricultural implements, \$5,000,000; cotton cloth, scientific instruments, rails, wire and hardware, each about \$2,000,000; and naval stores, twine, sewing machines, upper leather, lubricating oil and lard, locomotives, cars and carriages, cottonseed oil, furniture, electrical

the table below shows the principal articles of export and import of the fiscal years 1908-9:

IMPORTS INTO, AND DOMESTIC EXPORTS FROM, THE UNITED STATES OF PRINCIPAL ARTICLES FOR THE FISCAL YEARS 1908 AND 1909

Articles	Imports 1908	1909
Chemicals, drugs and dyes.....	\$73,237,033	\$78,379,634
Coffee	67,688,106	79,112,129
Cotton, manufactures of.....	68,379,781	62,010,286
Earthen, stone and china ware	13,427,969	9,809,028
Fibres:		
Manufactures of	54,467,572	49,312,392
Unmanufactured	35,493,083	29,769,974
Fish	12,292,770	12,403,012
Fruits, including nuts.....	37,354,742	31,110,663
Furs, and manufactures of.....	15,918,149	9,432,993
Hides and skins, other than fur skins	54,770,136	78,489,838
India rubber and gutta-percha crude	37,753,266	61,709,723
Iron and steel, and manufactures of	27,607,909	22,439,787
Precious stones	18,386,412	29,373,040
Leather, and manufactures of	14,127,347	13,933,134
Oils	18,292,393	20,403,512
Silk:		
Manufactures of	32,717,668	30,718,582
Unmanufactured	64,546,903	79,903,556
Spirits, wines and malt liquors	20,771,804	23,168,845
Sugar	80,258,147	96,554,998
Tea	16,309,870	18,562,676
Tin, in bars, blocks or pigs.....	25,295,061	26,007,216
Tobacco, unmanufactured.....	22,870,328	25,400,919
Wood, and manufactures of	43,527,982	43,690,417
Wool:		
Manufactures of	19,387,978	18,102,460
Unmanufactured	23,664,938	45,171,994
Exports		
Agricultural implements	\$24,344,398	\$25,694,164
Animals	34,101,289	22,645,423
Breadstuffs	215,260,588	159,929,221
Cars, carriages and other vehicles	22,072,902	15,392,817
Chemicals, drugs, dyes and medicines	20,873,155	19,131,811
Coal	39,355,750	37,316,795
Copper, manufactures of.....	104,064,680	85,290,156
Cotton:		
Manufactures of	25,177,758	31,878,566
Unmanufactured	437,788,202	417,390,665
Fertilizers	10,970,931	9,283,416
Fish	5,685,916	6,113,052
Fruits, including nuts.....	14,338,864	16,568,080
Iron and steel, and manufactures of, not including ore.....	183,982,182	144,951,357
Leather, and manufactures of	40,688,619	39,413,637
Mineral oils	194,116,440	105,999,637
Meat and dairy products.....	192,802,708	166,521,449
Naval stores	21,641,599	15,101,300
Oil cake and oil cake meal.....	21,064,974	25,836,134
Paper, and manufactures of	8,064,706	7,663,139
Paraffin and paraffin wax....	8,740,929	6,445,917
Seeds	8,683,688	5,256,623
Tobacco:		
Manufactures of	4,736,522	4,701,617
Unmanufactured	34,727,159	30,902,960
Vegetable oils	19,633,967	23,098,050
Wood, and manufactures of.....	81,521,305	67,867,932

*Includes Hinters. †Not including corn oil cake.

INTERNAL COMMERCE. Domestic commerce on the Great Lakes during the calendar year 1909, as measured by the volume of freight shipped between domestic ports on the Great Lakes, aggregated 80,974,605 net tons. This tonnage, while about one-third larger than for the year before, is about 2½ million tons below the corresponding 1907 tonnage, the largest

Countries	1907	Imports 1908	1909	1907	Exports 1908	1909
Europe						
Austria-Hungary.....	\$ 16,009,629	\$ 15,425,659	\$ 15,436,587	\$ 15,136,185	\$ 16,174,738	\$ 14,226,703
Belgium.....	30,142,562	19,895,677	27,393,918	51,493,044	52,940,514	45,093,003
Denmark.....	1,125,945	1,272,938	1,625,408	23,384,989	21,541,696	17,522,113
France.....	127,803,407	101,999,541	108,387,337	113,604,692	116,123,468	108,764,262
Germany.....	161,543,556	142,935,547	143,525,828	256,595,663	276,922,089	235,324,140
Greece.....	3,086,417	3,019,666	2,382,202	1,634,431	1,290,804	1,237,287
Italy.....	50,455,157	44,844,174	49,287,894	61,746,965	54,217,394	58,509,595
Netherlands.....	32,455,612	20,306,864	26,086,336	104,507,716	102,206,184	95,012,366
Norway.....	3,795,387	3,668,909	4,643,609	5,682,508	6,841,626	5,806,113
Portugal.....	6,479,500	4,967,922	6,240,562	2,787,422	3,086,072	3,901,405
Russia in Europe.....	16,559,437	11,113,421	11,051,571	19,778,156	16,342,377	15,633,175
Spain.....	13,426,665	14,152,712	14,077,064	21,330,384	21,906,379	19,679,003
Sweden.....	4,171,264	4,633,672	4,486,142	9,413,649	9,671,810	6,731,304
Switzerland.....	26,830,474	24,698,036	23,831,492	612,579	646,840	750,736
Turkey in Europe.....	6,939,761	4,554,509	6,393,468	1,125,099	1,418,024	1,896,249
United Kingdom.....	246,112,047	190,355,475	208,612,758	607,783,255	580,663,522	514,627,365
Total Europe.....	747,291,253	608,014,147	654,322,918	1,298,452,380	1,283,600,155	1,146,755,321
North America						
Bermuda.....	571,993	455,546	477,705	908,637	957,066	1,163,626
British Honduras.....	754,581	737,389	848,925	1,280,640	1,299,145	1,081,898
Canada.....	73,334,615	75,131,666	79,317,055	183,206,067	167,086,947	163,445,656
Newfoundland and La- brador.....	1,478,259	1,169,060	1,162,211	2,920,349	2,587,748	3,939,643
Central Amer. States:						
Costa Rica.....	4,965,034	4,405,165	2,695,858	2,470,986	2,696,744	2,307,096
Guatemala.....	3,872,538	2,390,167	3,148,489	2,848,864	1,730,700	1,706,156
Honduras.....	2,296,556	2,268,070	2,150,752	1,833,056	1,768,995	1,499,632
Nicaragua.....	1,028,166	1,160,832	1,004,811	1,923,111	1,574,879	1,355,287
Panama.....	1,752,314	1,469,344	1,676,994	16,150,953	18,232,666	16,797,530
Salvador.....	1,171,187	981,715	970,137	1,603,166	1,357,297	1,462,135
Total Central Am. States.....	15,085,795	12,675,293	11,647,041	26,830,136	27,361,281	25,127,836
Mexico.....	57,233,527	46,945,690	47,712,214	66,248,098	55,509,604	49,793,323
West Indies.						
British.....	12,191,852	12,129,850	11,410,019	10,755,139	12,475,383	11,715,654
Cuba.....	97,441,690	83,284,692	96,722,193	49,305,274	47,161,306	43,913,356
Danish.....	440,855	592,292	221,457	777,577	727,193	693,631
Dutch.....	356,071	361,966	249,823	711,141	706,210	635,827
French.....	41,019	60,111	49,899	1,422,025	1,455,701	1,411,204
Haiti.....	1,274,678	689,045	525,947	2,916,104	3,649,172	3,937,359
Santo Domingo.....	3,370,899	4,583,661	3,653,880	2,509,817	2,703,276	2,579,320
Total North America	263,576,349	238,815,898	253,999,920	349,840,641	324,674,719	309,475,694
South America						
Argentina.....	16,715,325	11,024,098	22,230,182	32,163,336	31,853,155	33,712,505
Bolivia.....		384	138	941,287	1,226,238	792,691
Brazil.....	97,881,158	74,577,864	98,053,229	18,697,547	19,490,077	17,527,692
Chile.....	18,282,029	14,777,811	13,712,373	10,195,657	9,194,650	5,466,286
Colombia.....	6,308,680	6,880,755	7,010,304	3,084,718	3,452,375	3,679,070
Ecuador.....	3,059,573	2,401,188	2,730,372	1,726,289	1,909,126	1,849,657
Gulana:						
British.....	1,213,813	230,828	791,349	1,847,147	1,988,385	2,009,988
Dutch.....	690,911	780,369	865,743	519,504	645,417	612,087
French.....	33,922	33,136	39,728	294,976	334,174	371,615
Paraguay.....	3,819	14,645	16,777	173,560	100,568	52,263
Peru.....	4,958,202	6,670,616	6,386,544	6,075,739	6,959,579	4,557,864
Uruguay.....	3,160,891	1,364,796	3,726,877	3,412,785	3,868,661	3,360,313
Venezuela.....	7,852,214	6,725,184	8,313,609	3,024,629	2,555,863	2,568,211
Total South America.	160,165,537	124,998,590	163,878,724	82,157,174	83,583,874	76,561,680
Asia						
Aden.....	2,586,207	1,615,261	1,768,945	2,110,516	1,097,277	1,446,670
China.....	33,636,568	26,599,820	29,442,722	27,617,431	31,020,925	19,948,933
East Indies:						
British India.....	59,007,069	44,465,398	43,547,347	7,310,143	9,238,203	8,372,137
Straits Settlements....	20,899,618	13,185,276	15,719,858	1,506,075	2,439,239	1,590,431
Other British.....	3,913,056	3,833,613	4,640,691	203,508	209,417	293,062
Dutch.....	11,401,065	14,095,364	22,967,601	2,041,028	2,181,952	2,622,998
Hongkong.....	2,740,642	2,129,256	1,769,019	8,332,208	8,975,161	7,267,802
Japan.....	68,910,594	68,107,545	70,392,722	38,770,027	41,432,327	26,691,613
Korea.....	1,120	3,045	2,879	1,459,223	1,563,113	320,780
Russia, Asiatic.....	1,144,745	341,627	793,345	2,004,199	2,072,915	1,635,734
Siam.....	65,581	51,858	121,988	376,738	392,663	364,029
Turkey in Asia.....	7,666,427	6,206,061	6,035,660	628,716	555,376	621,893
Total Asia.....	212,475,427	181,167,616	197,548,027	92,703,664	101,784,832	71,792,187

Oceania						
British Oceania:						
Australia and Tasmania	13,434,331	11,186,668	13,973,219	25,768,627	28,280,661	24,077,260
New Zealand	4,201,206	3,040,168	2,847,655	6,297,238	6,502,362	5,463,547
All other	104,095	66,208	107,216	46,280	141,730	130,566
French Oceania	534,867	543,193	669,036	342,226	346,504	397,740
German Oceania	456	54,406	30,896	70,398	56,212	132,334
Philippine Islands	11,510,438	10,164,228	9,483,986	8,661,424	11,461,732	11,189,441
Total Oceania	29,785,393	25,054,866	27,062,008	41,186,193	46,789,201	41,390,788
Africa						
British Africa:						
West	161,885	91,271	196,185	2,061,058	2,085,046	1,997,245
South	1,573,940	1,760,350	1,689,570	7,689,759	7,847,045	7,398,954
East	916,552	655,584	856,613	746,505	354,637	515,441
French Africa	836,037	498,045	549,512	1,301,219	1,545,145	1,609,052
Portuguese Africa	93,591	67,935	106,061	2,855,502	5,463,949	3,611,167
Spanish Africa				6,464	9,139	22,897
Egypt	16,615,706	12,863,061	11,200,841	1,225,077	2,126,383	1,293,807
Total Africa	21,127,466	16,290,675	15,108,627	16,511,026	20,340,565	17,035,434
Grand total	1,434,421,425	1,194,341,792	1,311,920,224	1,880,851,078	1,860,773,346	1,663,011,104

total in the history of the lake trade. The above total, reported by the Bureau of Statistics of the Department of Commerce and Labor, does not comprise the entire volume of lake commerce, as it does not include the volume of exports to Canada nor the imports from Canada nor the movement between Canadian ports. Neither do these figures include the volume of the purely local movements within the limits of the ports proper. If the volume of these movements were included it is likely that the total lake commerce during the year would approximate, if not exceed, 90 million tons.

The iron-ore shipments by lake during the year, as reported to the Bureau, exclusive of about 400,000 gross tons exported to Canada, totaled 40,732,677 gross tons, compared with 24,930,185 gross tons in 1908 and 40,727,972 gross tons in 1907. The largest shipping ports in the order of their importance were Duluth, credited with 13,260,399 gross tons; Two Harbors, credited with \$8,965,698 gross tons; Superior, credited with 6,420,095 gross tons; Escanaba, credited with 5,533,698 gross tons; Ashland, credited with 3,638,849 gross tons; and Marquette and Presque Isle, credited with 2,884,241 gross tons.

Domestic grain shipments during the past season totaled 118,203,760 bushels, of which 56,114,633 bushels was wheat; 28,954,740 corn; 17,828,717 oats; 14,137,662 barley; and 1,167,988 bushels rye. As compared with corresponding shipments during the past season, the figures of wheat and rye show decreases and those of other grains slight increases. Over 87 per cent. of the annual wheat shipments proceeded from Duluth and Superior. The lake shipments for the past year of this article from Chicago, 5,855,300 bushels, were about one-third below the average for the preceding five years. Over 84 per cent. of the domestic lake shipments of corn proceeded from Chicago. Flaxseed shipments for the year, 9,883,432 bushels, were about 37 per cent. below those reported for 1908 and proceeded practically all from Duluth and Superior.

The lumber shipments for the year, 1,155,765 M. feet, fell about one-third below the average for the five-year period 1903-1907, notwithstanding the large demand for this material in the Middle West and in the East. Of the

total lumber shipped, about 54 per cent. proceeded from Lake Michigan ports, about 37 per cent. from Lake Superior ports, and the remainder from Lake Huron ports.

The vessel movement between domestic lake ports, as measured by the aggregate outbound vessel tonnage, 103,271,885 net tons, was larger than for any previous year, although the number of vessel departures, 73,104, has been exceeded during each year between 1905 and 1907. The average size of registered craft, as calculated from the tonnage figures for the year 1909, was 1413 net tons, compared with 1100 net tons in 1905 and 925 net tons in 1902.

The freight tonnage during the year reported for the Detroit River aggregated 62,247,670 net tons, compared with 46,946,884 net tons and 67,292,504 net tons reported for the 1908 and 1907 seasons. A 33 per cent. increase of the river movement for 1909, as compared with 1908, is thus seen to correspond to a 40 per cent. increase in the canal movement and a 34 per cent. increase in the total lake shipments. Of the total for the year, 44,404,299 net tons represented a southbound and 17,843,371 net tons a northbound movement. The 1909 vessel movement through the river during the past season comprised 21,531 vessels of 47,621,078 net tons register, compared with 18,212 vessels of 36,290,089 net tons register for the 1908 season and 23,721 vessels of 48,958,238 net tons for the 1907 season.

NAVIGATION. The shipping registered for foreign trade on June 30, 1909, consisted of 1633 vessels of 887,505 gross tons. These vessels, however, include a number which have outlived their usefulness, and others, which, though registered, are engaged in trades from which foreign ships are excluded. For effective competition in foreign trade any one of several of the great British and German steamship companies is better equipped than the entire steam fleet in that trade under the American flag. In the past year three of the American trans-Atlantic steamships built recently in the United States were transferred to the Belgian flag. At the beginning of the fiscal year 1909 there were only four American steamships regularly engaged in European trade, only five in trade with Asia, and none with South America below the Caribbean, or

age passengers to and from the United States during the first half of 1909, 143 were equipped with wireless telegraph installations. These carried about 174,000 passengers, of whom 147,000 were steerage passengers; 139 steamships not equipped carried about 6000 cabin and 55,000 steerage passengers. In the coastwise passenger trade all ocean steamers carrying 50 passengers or more over routes of 200 miles or more, with a capacity of 32,000 passengers, were equipped with wireless telegraph, while 70 with a capacity of 18,000 were not so equipped. Through the efforts of the Navy Department, the War Department, and private enterprise, the coasts of the mainland of the United States, Alaska, Hawaii, Porto Rico and the Canal Zone are now so provided with wireless shore stations that vessels at sea anywhere within 300 miles of the shore can communicate with the land as well as usually with other vessels. The Secretary of Commerce and Labor recommends the passage of a bill by Congress requiring wireless installation as a measure of safety on ocean passenger steamers carrying more than a given number of passengers over more than a given distance.

EDUCATION. See EDUCATION IN THE UNITED STATES; AGRICULTURAL EDUCATION; UNIVERSITIES AND COLLEGES and PROFESSIONAL SCHOOLS.

COINAGE. The following table indicates the amount and character of the coinage as used in the United States in the calendar years 1908 and 1909.

COINAGE OF 1908 AND 1909

Denomination	1908	
	Pieces	Value
Double eagles	5,463,160	\$109,263,200.00
Eagles	1,481,336	14,813,360.00
Half-eagles	1,229,886	6,149,430.00
Quarter-eagles	565,057	1,412,642.50
Total gold	8,739,439	\$131,638,632.50
Half-dollars	11,639,373	\$5,819,686.50
Quarter-dollars	17,048,545	4,262,136.25
Dimes	23,099,545	2,309,954.50
Total silver	51,787,463	\$12,391,777.25
Five cents	22,686,177	\$1,134,308.85
One cent	33,442,987	334,429.87
Total minor	56,129,164	\$1,468,738.72
Total coinage	116,656,066	\$145,499,148.47

Denomination	1909	
	Pieces	Value
Double eagles	2,988,707	\$59,774,140.00
Eagles	598,753	5,987,530.00
Half-eagles	4,382,098	21,910,490.00
Quarter-eagles	441,899	1,104,747.50
Total gold	8,411,457	\$88,776,907.50
Half-dollars	5,058,050	\$2,529,025.00
Quarter-dollars	16,442,650	4,110,662.50
Dimes	14,481,650	1,448,165.00
Total silver	35,982,350	\$8,087,852.50
Five cents	11,590,526	\$ 579,526.30
One cent	117,686,263	1,176,862.63
Total minor	129,276,789	\$1,756,388.93
Total coinage	173,670,596	\$98,621,148.93

RECEIPTS

	1908	1909
Customs	286,113,130.29	300,711,933.95
Internal revenue	251,711,126.70	246,212,643.59
Sales of public lands	9,731,560.23	7,700,567.78
Miscellaneous	53,504,906.05	48,964,344.52
Ordinary receipts	601,060,723.27	603,589,489.84
Panama Canal receipts*	25,367,768.67	30,731,008.21
Public debt receipts	79,769,636.50	45,624,239.50
Total, exclusive of postal	706,198,128.44	679,944,737.55
Postal revenue	191,478,663.41	203,562,383.07
Total, incl. postal	897,676,791.85	883,507,120.62

*Proceeds of bonds and premiums.

DISBURSEMENTS

	1908	1909
Civil and miscellan..	162,532,367.63	167,001,087.10
Postal deficiency	12,888,040.94	19,501,062.37
War Department	137,746,523.95	161,067,462.39
Navy Department	118,037,097.15	115,546,011.09
Indians	14,579,755.75	15,694,618.11
Pensions	153,892,467.01	161,710,367.25
Int't on public debt	21,426,138.21	21,803,836.46
Ordinary disburs.	621,102,390.64	662,324,444.77
Panama Canal disbursements	38,093,929.04	31,419,442.41
Public debt disbursements	73,891,906.50	104,996,770.00
Total, exclusive of postal	733,088,226.18	798,740,657.18
Postal expenditures	191,478,663.41	203,562,383.07
Total, incl. postal	924,566,889.59	1,002,303,040.25
Deficit	26,890,097.74	118,795,919.63

The receipts and disbursements for the fiscal year ending June 30, 1910, are estimated by the Secretary of the Treasury in his annual report as follows:

RECEIPTS

Customs	\$335,000,000
Internal revenue, ordinary	253,000,000
Corporation tax	15,000,000
Miscellaneous	45,000,000
Total ordinary receipts	\$648,000,000

DISBURSEMENTS

Civil establishment	\$175,000,000.00
Postal deficiency	16,880,620.12
War Department	165,000,000.00
Navy Department	125,000,000.00
Indian service	17,000,000.00
Pensions	161,000,000.00
Interest on the public debt	22,195,000.00
Total ordinary disbursements	\$682,075,620.12
Deficit in ordinary receipts of	\$ 34,075,620.12
Panama Canal disbursements	38,000,000.00
Miscellaneous redemptions of the public debt	1,000,000.00
Total estimated deficit of	\$ 73,075,620.12

	of Money in the United States.	ury as Assets of the Gov- ernment.	MONEY IN CIRCULATION	
	Dec. 31, 1909	Dec. 31, 1909	Dec. 31, 1909	Dec. 31, 1908
Gold coin (including bullion in Treasury)	\$1,638,108,821	\$157,103,539	\$606,212,413	\$619,317,841
†Gold Certificates		84,885,800	789,907,069	801,860,509
Standard Silver Dollars	564,334,719	2,216,644	74,763,075	72,443,593
†Silver Certificates		12,965,542	474,389,458	470,837,799
Subsidiary Silver	162,801,137	15,832,549	146,968,588	135,063,365
Treasury Notes of 1890	3,942,000	8,162	3,933,838	4,589,189
United States Notes	346,681,016	7,814,753	338,866,263	336,422,969
National Bank Notes	710,354,253	23,240,419	687,113,834	651,780,438
Total	\$3,426,221,946	\$304,067,408	\$3,122,154,538	\$3,092,315,703

Population of the United States Dec. 31, 1909, estimated at 89,644,000; circulation per capita, \$34.83.

† For redemption of outstanding certificates an exact equivalent in amount of the appropriate kinds of money is held in the Treasury, and is not included in the account of money held as assets of the Government.

† This statement of money held in the Treasury as assets of the Government does not include deposits of public money in National Bank Depositaries to the credit of the Treasurer of the United States, amounting to \$35,324,066.85.

NATIONAL DEBT. The amount and classification of the United States national debt at the end of the calendar years 1908 and 1909, were as follows:

	Dec. 31, 1908	Dec. 31, 1909
Interest-bearing debt at from 2 to 4 per cent. and redeemable from 1907 to 1925 inclusive	\$ 912,900,850.00	\$ 913,317,490.00
Debt on which interest has ceased since maturity	3,448,935.26	2,365,725.26
Debt bearing no interest	400,501,382.78	380,537,483.78
Gross debt	\$1,316,851,168.04	\$1,296,220,699.04
Cash balance	169,501,417.34	84,048,865.69
Net debt	\$1,147,349,750.70	\$1,212,171,833.35

ARMY

STRENGTH. The strength of the regular army on October 15, 1909, was 4209 officers and 71,840 enlisted men, making a total of 76,049, an increase during the year of 3421. These figures do not include 3485 men of the hospital service.

The geographical distribution of the regular army on October 15, 1909, is shown in the following table:

	Officers	Enlisted men	Total
In the United States	3,273	56,008	59,281
In Alaska	49	1,065	1,114
In the Philippines	705	12,871	13,576
In Porto Rico	29	578	607
In Hawaii	57	1,179	1,236
Troops en route and officers at other foreign stations.	96	139	235
Total	4,209	71,840	76,049

There were also in the service 157 officers and 5572 enlisted men of the Philippine Scouts. The authorized maximum strength on October 15, 1909, was 4431 officers and 78,778 enlisted men. This does not include 178 officers and 5731 enlisted men of the Philippine Scouts, or the Hospital Corps, which has an average strength of about 3500 men.

On June 30, 1909, there were 4048 commissioned officers on the active list of the regular army. Of these, 1079, including 63 chaplains, were general officers, or officers of the staff corps

and departments, and 2969 belonged to the line. An examination of the record of commissioned officers in the regular army shows that 43.36 per cent. of the officers on the active list on October 15, 1909, were graduates from the United States Military Academy; that 12.97 per cent. were appointed from the army and that 43.67 per cent. were appointed from civil life. Of those appointed from civil life 21.38 per cent. had prior service in the army and 22.29 had no such prior service. The Secretary of War in his annual report points out that more than one-third of the captains of the army were absent from their proper commands on detached duty on June 30, 1909. He recommends as a remedy for this condition an increase in the number of officers of the regular army and suggests that it might be well to modify the present law so as to authorize the Secretary of War in his discretion, when the necessities of the public service require it, to assign certain classes of retired officers to active service temporarily, provided their health and physical condition will permit of efficient performance of duty.

Eighty-eight officers were retired during the fiscal year ended June 30, 1909, 13 more than were retired during the preceding fiscal year. The total number of officers on the retired list on that date was 1000 as compared with 970 on the corresponding date of the previous year. Of the number retired during the fiscal year 1909, 51 were retired for disability, 18 on their own application, 17 by operation of law, having

reached the age limit, 1 after failure to pass second professional examination, and 1 under a special act of Congress. Of the 18 who were retired on their own application, 9 had been over 40 and 9 over 30 years in the service.

ENLISTMENTS. The total number of enlistments in the army during the fiscal year ended June 30, 1909, exclusive of the Hospital Corps and Philippine Scouts, was 31,057. Of this number, 9042 were reenlistments and 22,015 were original enlistments. The percentage of native born white and colored among the original enlistments was 88. Of the 31,057 accepted applicants, 26,493 were native born, 4105 were of foreign birth, 17 were Indians and 428 were born at Porto Rico. During the fiscal year 1907 Filipinos were enlisted for the Philippine Scouts, as compared with 4388 for the preceding fiscal year. These were all natives of the Philippine Islands. The recruiting of the army progressed so satisfactorily early in the year that the army was filled almost to its authorized enlisted strength. Active recruiting was suspended February 19, 1909, on which date orders were issued to accept only such applicants for enlistment in the line of the army as had had previous army service. Active recruiting in all branches of the army was resumed on July 20, 1909. The record for the year 1909 shows a slight increase in the number of desertions over the rate for the preceding year, notwithstanding renewed efforts looking to the apprehension and punishment of deserters. This increase was to be expected, however, because of the extraordinarily large number of recruits brought into the service during the year and because the greater number of desertions always occur in the earlier months of service. The Secretary of War states that beyond all doubt the mitigation of the punishment of deserters by department commanders and others, with or without the recommendation of courts martial, and the restoration of convicted deserters to duty, besides having a mischievous effect on the morale of the enlisted force, has a tendency to increase desertions.

LOSSES. The losses from all causes in the army, including the Philippine Scouts, during the fiscal year ended June 30, 1909, was 155 officers and 25,792 men. Of the officers 23 were killed in action or died of wounds, disease, etc., 36 resigned or were discharged, 7 were dismissed, 1 deserted and 88 retired. Of the enlisted men, 429 were killed in action or died of wounds, disease, etc., 12,903 were discharged upon expiration of term of service, 7174 were discharged for disability by sentence of court martial or by order, 4993 deserted and 293 were retired. Of the Philippine Scouts, 3 officers were killed in action, or died of wounds, disease, etc., 8 resigned or were discharged and 1 was dismissed. Of the enlisted men of the Philippine Scouts, 44 were killed in action, or died of wounds, disease, etc., 437 were discharged upon expiration of term of service, 262 were discharged for disability by sentence of court-martial or by order, and 29 deserted.

DISCIPLINE. No serious breach of discipline occurred in the army during the year and upon the whole a creditable state of efficiency and discipline was maintained. The Inspector-General reports, however, that there is no doubt but that the discipline and efficiency of troops are lowered by the continued absence of so

many company officers and the frequent changes of company commanders. There was a considerable increase in the number of trials by courts martial, but the great mass of such trials was for minor offenses. The operations of the army during the year, save for a few sporadic cases in the Philippines, where occasional lawless acts committed by outlaw bands of Moros called for the use of small detachments of army troops to assist the civil authorities, were of an entirely peaceful nature.

The Secretary of War expresses the opinion that the entire absence of a merit system in the advancement in their calling of the officers of the army is not good for the efficiency of the organization. Except by detail to the Ordinance Department or to the lowest grade of the Judge-Advocate-General's Department or the General Staff, it is impossible to advance an officer a single step beyond his own place in his branch of the service, no matter how great his merit may be nor how mediocre those immediately above him, unless he is made a general officer. The Secretary of War asserts that there should be as a part of the merit system at least the elimination of the least efficient. A method of elimination designed to be effective is that of examination for promotion, but the experience of 19 years with it has shown that it does not work and that by its officers are not got rid of for mere inefficiency.

The Secretary of War recommends that the present test designed to demonstrate the physical condition of all field officers of the army, introduced in 1908, should be modified so as to provide for a certain number of miles of riding or walking each week to be certified by the officers on their monthly report. These tests at present consist of a horseback ride of not less than 30 miles a day for three days in succession, or a walking test of 50 miles in three consecutive days in a total of 20 hours.

MOBILE ARMY. The Secretary of War declares that the time has now arrived when a rational plan should be devised for coöperation between the regular army and the State militia with respect to a mobile army. For several years, and more particularly since 1903, the War Department and the National Guard organizations have been working together in great harmony and with increasing effectiveness towards this end. Joint camps of instruction and manœuvres have been held biennially in different parts of the country and have been a pronounced benefit to all the troops engaged. The participation of the National Guard in these manœuvres has given to the regular army an inestimable advantage not otherwise obtainable of experience in the manœuvring of large masses of men under conditions of service assimilated so far as practicable with the actual conditions when war is in progress. The National Guard in addition has had the opportunity to acquire military experience in associating with professional soldiers. The number of men in the regular army and National Guard combined participating in these different manœuvres has ranged from 30,000 to 50,000. The manœuvres in 1909 were carried on in the vicinity of Boston. The Secretary of War suggests that, in order to put into operation a plan for coöperation between the army and the militia, the United States should be divided into a number of territorial and tactical dis-

for instruction and tactical organization. It is proposed to submit such a plan of organization to the governors of the States, asking their assent thereto, as all this system, so far as the National Guard is concerned, must be voluntary. See MILITIA.

A board consisting of five infantry officers and the commanding officer of Rock Island Arsenal was convened at the Arsenal on April 28, 1909, for the purpose of considering the question of the equipment and load for the infantry soldier, and to decide upon the number, kind, and weight of the articles of equipment to be carried.

In March, 1909, a request was received from the Cuban government through the State Department for the detail of three officers from our army for duty with the Cuban army as instructors in their respective arms of the service. In accordance with this request Captain Frank Parker, Eleventh Cavalry; Captain G. G. Gatley, Third Field Artillery; and Captain Philip S. Golderman, Coast Artillery Corps, were ordered to Cuba for duty as requested.

FORTIFICATIONS. About 85 per cent. of the heavy guns and mortars and 75 per cent. of the rapid fire guns called for under the plan of the National Coast Defense Board have now been mounted. The armament of the seacoast fortifications, while not entirely completed, was, at the end of the fiscal year, in a very forward condition of effectiveness. Seventy per cent. of the total work required in Manila Bay and at Honolulu and Pearl Harbor has already been appropriated for. This includes provision for the greater part of the work in the Philippines and Hawaii. It is estimated that \$11,685,789 will be needed to complete the defenses of all the insular ports, divided as follows: \$6,700,455 for Guantanamo, Cuba, San Juan, Porto Rico, Kiska Island and Guam, and \$4,985,334 for the Philippines, Honolulu and Pearl Harbor.

WIRELESS TELEGRAPHY. The Secretary of War calls attention to the very unsatisfactory condition of affairs concerning international wireless telegraphy. As the United States has not given its adherence to the treaty signed at Berlin on November 3, 1906, in regard to the conduct of the international wireless telegraph business of the world, ships floating the American flag find themselves without standing in international wireless telegraphy, as none of the contracting countries is compelled to receive a telegram from the ship of a non-contracting country, and any coastal station in a foreign country may refuse transmission of a message to a station on shipboard subject to a non-contracting country. As a result of this condition, the United States army transport *Kilpatrick*, in a cruise from New York to Manila, February 17 to April 23, 1909, and returning May 15 to July 25, 1909, had great difficulty in communicating in different parts of the world and it is reported that in several instances, after ascertaining her nationality, messages were refused.

The army of Cuban pacification having ended its duties in Cuba, began the withdrawal of its troops about January 1, 1909, and this was concluded on April 1, 1909, when the last re-

States after a service of nearly two and a half years on the island.

BROWNSVILLE. Under the provisions of an act of Congress, March 3, 1909, a court of inquiry was appointed on April 7 to hear and report upon the charges and testimony relating to the shooting affray which took place in Brownsville, Texas, on the night of August 13 and 14, 1906. This court is to determine which soldiers and non-commissioned officers, if any, of the companies B, C, and D of the Twenty-fifth Infantry, who were discharged from military service as members of this regiment, November 9, 1906, are qualified for reenlistment in the army of the United States. The detail for the court is: Lieutenant-General Samuel B. M. Young, retired; Major-General Joseph P. Sanger, retired; Brigadier-General John M. Wilson, retired; Brigadier-General Theodore Schwan, retired; Brigadier-General Butler D. Price, retired, as members, and Captain Charles R. Howland, Twenty-first Infantry, as recorder. The court held its first session May 4, 1909, at Washington, and since that date has held regular sessions and carefully considered the sworn statements hitherto made in the case as well as the reports and testimony given in the Congressional investigations.

EXPENDITURES. The total expenditures of the army for the fiscal year ended June 30, 1909, was \$153,543,858. Of this sum, \$1,984,559 was expended for civil establishment; \$97,125,219 for the military establishment; \$12,242,724 for military public works, and \$35,351,114 for civil public works. For miscellaneous expenses there was expended \$6,840,240. The estimates for the fiscal year ending June 30, 1910, were \$189,755,039 and the appropriations made for that year were \$155,315,491.

NAVY

On March 4 George von L. Meyer became Secretary of the Navy, succeeding Truman L. Newberry, who had been Secretary since December 1, 1908.

The following table shows the strength of the United States Navy and the number of vessels and tonnage of 1000 or more tons, and of torpedo boats of more than 50 tons on November 1, 1909:

	Number	Tons
Battleships (10,000 tons and over)...	31	449,796
Coast-defense vessels.....	6	23,299
Armored cruisers	12	157,445
Cruisers above 6,000 tons	5	43,800
Cruisers 6,000 to 3,000 tons.....	17	61,124
Cruisers 3,000 to 1,000 tons.....	13	16,648
Torpedo-boat destroyers	36	21,300
Torpedo boats	30	5,177
Submarines	27	7,315
Total	177	785,945

BUREAU REORGANIZATION. The confusion and lack of efficiency as a result of the system of bureaus having direction of the various departments of the navy have given rise to attempts at bureau reorganization which shall obviate these drawbacks and give to the Sec-

retary of the Navy real power over all the bureaus which are nominally under his control. A plan of reorganization was undertaken by Mr. Newberry in 1908. This plan contemplated the increase in the membership of the General Board and of the Board of Construction, and provided for greater coöperation between the members. The navy regulations were amended so as to re-distribute the work of battleship designing in such a way as to avoid archaic and unbusinesslike methods. Some details of this plan met with severe criticism and on April 17 a pamphlet was published containing a criticism of these plans, which had resulted from the meeting of officers held at the Philadelphia Navy Yard. These officers claimed that the subject of the naval administration in general had received but slight attention and study from the great majority of the officials of the navy and that the recent changes in navy yard administration were probably known in detail to but few officers and were thoroughly understood by but a small percentage of these. They advocated the forming of an association, the object and efficiency of which would be to collect, collate, study and disseminate information regarding existing and possible systems of naval administration. The officers criticised severely the disadvantages of Secretary Newberry's proposed plan compared with the present plan of administration. This pamphlet was suppressed by the Navy Department, but it resulted in making public criticisms of Secretary Newberry's scheme from officers of the navy, including Admiral George W. Melville.

Mr. Meyer in his annual report, after reviewing the history of the formation of the bureaus, outlines a general plan for their reorganization. He stated that the business administration of the Navy Department logically divides itself into groups under personnel, material, and the operations or management of the personnel and material. The personnel includes the Bureaus of Navigation, Medicine and Surgery, and the Marine Corps. Material belongs to the Bureaus of Construction and Repair, Ordnance, Equipment, Steam Engineering, and Supplies and Accounts. Public works are the province of the Bureau of Yards and Docks. He points out that inspection of the fleet and its adjuncts, the navy yards and other shore stations has not been made by any departmental inspection reporting directly to the Secretary, and that the direction of the fleet, its operation, and its preparedness for war have been carried out without adequate methods. While the General Board has proved useful it has been without responsibility for carrying out his recommendations. The Bureau of Navigation, without specific authority over the other bureaus and with its own duties to occupy it, has only in part supplied the lack of suitable machinery for directing the operations of the fleet and its preparedness for war. On account of the growth of the navy and the increasing amount of business the different bureau chiefs have been necessarily engrossed in the details of their own duties; with the complexity and conflicting interests involved in the creation and maintenance of a modern fleet, they have at times failed to agree on matters where the field of each has overlapped. In this and similar situations the Secretary is without expert responsible advice or aid in making his decisions,

and moreover is not kept properly informed as to what is going on in the logical divisions of business of the Navy Department.

To effect the principal changes found necessary the Secretary recommends that the Bureau of Equipment be abolished and that the Secretary be authorized to distribute its duties among other bureaus. The other bureaus are to be continued in full effect. To supply the information and responsible advice which the Secretary lacks at present, the Department has decided to detail officers of rank specially fitted by experience and of recognized ability in their several fields as aides for special branches of effort and study. The officers selected will, so far as practicable, be flag officers, who will each keep closely informed of the work of the department in his particular division and will advise the Secretary concerning it. The aide for operations will advise the Secretary as to strategic and tactical matters in conjunction with the General Board and also advise regarding the movements and dispositions of naval vessels. The aide for personnel will advise the Secretary on matters which fall under the Bureau of Navigation, the Bureau of Medicine and Surgery, the office of the Judge-Advocate-General and the naval examining and retiring boards. He will also have cognizance of matters affecting the naval militia. The aide for material will advise the Secretary generally on matters concerning the construction, arming, equipment and supply of naval vessels and the management of naval yards. The aide for inspection will advise on all inspections ashore and afloat coming under the board of inspection and survey for ships, the board of inspection for shore stations, and the special inspecting officers. With the assistance of these aides the Secretary is provided with a minimum number of advisers corresponding to the natural grand divisions of the department, the object being to arrange the duties so that each aide will make himself responsible to the Secretary for the advice given in matters pertaining to his own duties. Thus the Secretary will be able to keep in closer touch with the business of the navy, and will aim to produce more economical administration with greater efficiency.

The matter of navy yard administration is one of the most important under the direction of the Secretary of War, and in his report he states that some extension and modification of the existing system is necessary for maintaining the preparedness of the fleet in the most economical and efficient manner. The consolidation plan is to be, in general, maintained, but certain changes are to be made. The machinery and the hull divisions in the navy yards were separated in July, 1909, and the machinery division was placed under the engineer officer. The results were found favorable and hereafter the work of the navy yards will be carried on in two divisions of manufacturing and repair, each under its own manager, namely a hull division and a machinery division. It is also the department's intention to require that the commandants and captains of navy yards, ordered to navy yard service, shall be specially qualified and shall have had previous training and experience and that their tenure of duty shall be long enough to produce continuous efficient administration; at the same time, of-

as far as possible, to concentrate each class of work where it can be done most economically and effectively. At present all ordnance is manufactured at the Washington Navy Yard, and all anchors, chain and rope at Boston. A new system of accounting has also been introduced. (The general plan outlined above went into effect on December 1.)

Secretary Newberry had issued an order closing certain of the southern navy yards. At the beginning of the present administration this order was suspended. It was not considered wise that the government should give up sites in which large expenditures have been made until after the opening of the Panama Canal, when it can be definitely demonstrated which are likely to be of the greatest value. The Navy Department proposes in the near future to take up the question of the importance of establishing navy yards in special localities, and the necessity of extending or curtailing the different navy yards, with a due regard for the interests involved and the probable needs of the future from a strategic point of view.

INCREASE OF THE NAVY. In order to keep the appropriations for the Navy Department within the economical limit set for the government, the Secretary of War recommends the new construction of only two battleships and one repair ship. The battleships asked are recommended to be of the all-big-gun type. They will complete the squadron of eight vessels of this general class, the others being the *North Dakota*, *Delaware*, *Florida*, *Utah*, *Arkansas* and *Wyoming*. There were at the end of the fiscal year 1909 six battleships of the *Dreadnought* type building or authorized, together with 19 destroyers and 20 submarines. Contracts were awarded to the New York Shipbuilding Company for the construction of two battleships, the *Wyoming* and *Arkansas*. These vessels are to cost \$4,675,000 each. Contracts were also awarded for the construction of six torpedo-boat destroyers, for one steam collier, for one fleet collier, for one ammunition lighter, and for seven submarine torpedo boats.

EXPENDITURES. The total expenditure for the navy for the fiscal year 1909 was \$120,396,323. Of this \$20,109,957 was for new construction. The amount appropriated for expenses for 1910 was \$136,935,199. Of this sum, \$38,819,595 was for new construction.

PERSONNEL. The Secretary of the Navy in his annual report points out the urgent need for legislation to improve the conditions which have existed for some years and still exist in the higher grades of the line of the navy. The senior officers of the navy, he says, are too old for the responsibilities and the arduous duty required in a modern battleship. They are much older than similar officers in the other principal navies of the world. Not only is this the case but flag officers arrive at the grade of rear-admirals so late that even those of longest possible service do not get adequate training as subordinate flag officers before receiving the chief command. The average age of the rear-admirals who were on the battleship fleet on the cruise around the world in 1908 was about 60 years, and of the captains about 56 years.

right arm of defense. The Navy Department has undertaken a comprehensive plan for the reorganization of the personnel of the navy and this will be submitted to Congress for action.

The cruise around the world increased the enlistments of men and enabled the Bureau of Navigation to recruit the enlisted force up to practically its full strength. There was a heavy decrease in the percentage of desertions, which dropped from 9 to 5½ per cent. during 1909.

NAVAL RESERVE AND MILITIA. The Secretary of the Navy points out in his annual report that the United States has no other naval reserve than the officers and men of the Revenue Cutter Service, and the officers and men of the naval militia of the several States. There should be, he says, a naval reserve composed of men whose occupations in civil life or whose inclinations and experience find some counterpart in naval life. Such men exist in the fishing fleets and in the vessels engaged on the Great Lakes and in coastwise traffic. Many men whose occupations are on shore would be available as engineers, firemen, and coal passers, with a training partly accomplished by their everyday labor. Officers of the naval reserve could be obtained in the same way and their positions established by examination. Recommendation for the legal establishment of a naval reserve of officers and men is to be made to Congress.

There are about 6000 naval militia organized by the different States bordering on the sea and the Great Lakes. These small groups while generally efficient are under no central control or training. The formation of a national naval militia on the lines of the land militia is essential, and legislation is required to accomplish this. It is estimated that about 1000 officers and 10,000 men will be needed for the war duties of an adequate naval militia. These duties comprise the manning of the naval patrol system and coast signal stations and the auxiliary vessels and harbor-defense vessels on the coast. Certain of the militia organizations were sent during the year on the battleships of the Atlantic Fleet for the purpose of training them with the best material and bringing them into closer touch with the navy. The results of this were excellent. The General Board is considering the question of the training of the naval militia, and its report will be used by the department in formulating recommendations for legislation.

RETURN OF THE ATLANTIC FLEET. The return of the Atlantic Fleet from its world cruise on February 22, 1909, was an event of great interest to the nation and the navy. This long voyage was successful in every respect. While the fleet was entering the Suez Canal word was received of the earthquake in Sicily, thereby giving the United States the opportunity to show its friendship to Italy and its interest in the cause of humanity by giving swift aid to the sufferers. The *Connecticut*, *Illinois* and *Culgoa* were at once dispatched to Messina. The crew of the *Illinois* recovered the bodies of the American Consul and his wife who had been entombed in the ruins. The *Scorpion*, the station ship at Constantinople, and the *Cedar* :

refrigerator ship fitted out in New York, were hurried to Messina to relieve the *Illinois* and *Connecticut*, which continued on their course. The benefits of this cruise around the world to both the officers and enlisted men are in the increase in efficiency and economy in steaming, the lessons that have been learned in keeping the vessels self-sustaining, the training in holding vessels accurately in formation and in battle exercises and the great improvement in target practice. The cruise also developed the desirability of certain alterations, especially the removal of unnecessary and unused top hamper, and the substitution of the skeleton fire-control towers for military masts. These alterations were at once made.

INSULAR NAVAL STATIONS. Owing to changed conditions the differences of opinion which have hitherto existed in regard to a naval base in the Philippine Islands have been entirely overcome and a joint board has made a report recommending that the United States maintain a small docking and repair station at Olongapo in the Philippine Islands, but that the main naval base in the Pacific Ocean should be established at Pearl Harbor, Hawaii. Operations at Guantanamo, Cuba, were obliged to cease as a result of lack of funds to continue the building up of this important insular station. The naval base at Pearl Harbor was started during the year and the building up of this important station will be rapidly carried on.

MARINES. On November 12, 1908, an order was signed by President Roosevelt withdrawing marines from duty on board vessels of the navy, and they were assigned, first, to garrison the different navy yards and different naval stations; second, to furnish the first line of the mobile defenses of naval bases and naval stations beyond the continental limits of the United States; third, to man such naval stations and to aid in manning, if necessary, such other defenses or naval bases and naval stations beyond the continental limits of the United States; fourth, to garrison the Isthmian Canal Zone, Panama; fifth, to furnish such garrisons and expeditionary forces for duty beyond the seas as may be necessary in time of peace. This order gave rise to much dissatisfaction, and as a result the Navy Appropriation bill, passed in February, contained a provision replacing the marines on shipboard from where they were removed and assigned to land duty by the President's order, and on March 26 the marines were ordered restored to the navy under former conditions. As a result of the disturbances in Nicaragua, which resulted in the death of two American citizens, a large body of marines on different vessels were hurried to both sides of the Isthmus of Panama.

RECOMMENDATIONS. The Secretary of War recommends legislation which will provide for a crypt or mausoleum in which will be interred the remains of Paul Jones. He recommends also a provision by which commissioned and warrant officers of the navy may receive medals of honor. He recommends an amendment permitting aliens who are serving or have served in the navy or marine corps to acquire citizenship.

POST-OFFICE

On February 4, Frank H. Hitchcock became Postmaster-General, succeeding George

von L. Meyer. The receipts of the Post-Office Department for the fiscal year ending June 30, 1909, were \$203,562,383, as compared with the fiscal year previous of receipts of \$191,478,663. The expenditures amounted to \$220,417,698, leaving a deficit of \$17,441,719. The bulk of the receipts was from the sales of stamps, stamped envelopes, newspaper wrappers and postal cards. These amounted to \$184,967,815. The second-class postage receipts were \$7,236,058, and from the sale of money orders, \$3,417,625. The chief expenditures were, for transportation of mails on railroads, \$45,054,578; for rural delivery, \$35,462,164; for compensation to assistant postmasters and clerks in post-offices, \$34,853,764; for city delivery, \$29,760,319; for compensation to postmasters, \$26,569,892; for railway mail service, \$18,352,674. The Postmaster-General in his annual report makes an examination into the reason for the deficit. He finds that the two great sources of loss to the postal revenues are second-class matter and rural delivery. The loss on second-class matter has been increasing for several years until it now amounts to more than \$64,000,000. The loss from rural delivery reaches nearly \$28,000,000 a year. The deficit in 1909 was increased by the falling off in business as a result of the financial depression. The Postmaster-General states that measures have been adopted in conformity with President Taft's policy of retrenchment and that these measures are being put into effect with substantial results. As a result of the investigation made during 1907-8, it was possible in 1909 to show the profit or loss chargeable in 1908 to the handling of the several classes of mail and to the conduct of the registry, special delivery and money order services. The most striking fact disclosed by the statistics gathered for this investigation was the tremendous loss on account of the second-class mail, which includes the magazines, newspapers, and other periodical publications. While this class of mail provides a revenue of little more than one cent a pound, the cost to the government of its handling and transportation averages 9.23 cents a pound. The growth in the quantity of second-class matter sent through the mails has been extraordinary in recent years. It amounted in 1909 to over 700,000,000 pounds. The loss on second-class matter was greater in 1908 than the profits on all classes of mail combined, and it exceeded the total amount paid the railways for mail transportation. Magazines and other periodical publications, exclusive of daily newspapers, comprise about 60 per cent. of the second-class mail, the magazines alone forming about 20 per cent. While the average haul of magazines proper is over 1000 miles and that of other classes of periodicals, not including daily newspapers, ranges from 550 to over 1100 miles, the haul of daily newspapers, which comprise about 40 per cent. of the second-class mail matter, averages less than 300 miles. The Postmaster-General states that in view of this condition, the question naturally arises, how far the length of haul should be regarded in fixing rates of postage for second-class matter. He mentions three possible plans for reducing the expense of carrying this matter by the government. The first is that magazines and periodicals be charged a higher rate of postage than newspapers; the second, the establishment of a zone system under

ter printed for advertising purposes, a higher rate to be charged on the latter. Whatever plan is adopted the Postmaster-General declares that some substantial advance in the postage rate on such material should be made in order to reduce the tremendous losses the government revenues are now suffering from these sources. He appointed in the early part of 1909 a special committee of departmental officers qualified to deal with the subject, who should review the information collected in the various prior investigations, and if possible devise a practical method of reducing, without injury to the public or unfairness to the publishers, the enormous losses chargeable to this class of mail. The reports of this committee are to be submitted to Congress as a guide to possible legislation.

RURAL FREE DELIVERY. On June 30, 1909, 40,628 rural routes were in operation. The expenditures on account of the rural service for the fiscal year ended on that date were \$35,661,034. Compared with the previous year there was an increase of 1351 routes and \$1,289,095 in expenses. The rural carriers handled in 1909 approximately 2,723,262,000 pieces of mail and the average monthly number of pieces handled per route was 5608. The rapid growth of the rural service has no precedent in the history of the postal establishment. It has grown in the last 12 years from 82 to 40,628 routes with an increase in annual expenditure from \$1480 to \$35,661,034.

POST-OFFICES AND POSTMASTERS. There were in the United States on June 30, 1909, 60,144 post-offices, 4888 stations and branches, and 50,043 money-order offices. The value of the domestic money orders issued was \$491,074,844, and international, \$76,754,802. The policy of reappointment of presidential postmasters who have proved their efficiency, and in retaining postmasters in offices of the fourth class so long as they render satisfactory service, has had a decidedly beneficial effect. The policy involves the requirement that the postmaster shall give his personal attention to the duties of his office, and insure his cooperation with the Department in improving the service.

The Postmaster-General recommends amendments to the existing statute providing for the advancement of offices to the presidential class. He recommends also that postal employees receive an annual leave of absence of 30 days. In regard to second-class mail he recommends the enactment of a provision excluding sample copies from the pound rate privileges, and the passage of measures to discourage the practice of padding subscription lists by mailing publications to addresses which are known to be undeliverable. He recommends that the section passed in May, 1908, and not retained in the penal code adopted March 4, 1909, excluding from the mails, matter of a character to incite arson, murder or assassinations be reenacted.

PENSIONS

The total number of pensioners on the rolls on June 30, 1909, was 946,194, as compared with 951,687 on the rolls on June

of the year was 593,961, a decrease of 27,094 during the year. The number of survivors of the Civil War whose names were dropped from the roll on account of death during the year was 32,831. There were on the rolls on June 30, 1909, one pensioner of the Revolutionary War, a daughter; 395 widows of pensioners of the War of 1812; 1744 survivors and 2881 widows of Indian wars; 2459 survivors and 6633 widows of the War with Mexico; 21,967 invalids of the War with Spain; and 1159 widows, 12,426 invalids and 2648 widows in the regular establishment. The total disbursements for pensions during the year was \$161,973,703. The total expenditures including cost of maintenance and expenditures of the Bureau, \$164,826,287. The amount paid for pensions in the fiscal year 1909 was the largest ever disbursed for pensions in one year. The increase in the disbursements was, to a great extent, due to the large number of pensioners placed on the roll under the act of February 6, 1907, granting \$12, \$14, and \$20 per month to survivors of the War with Mexico and the Civil War on reaching the ages of 62, 70 and 75 respectively. The increase is also due in part to pensions granted under the second section of the act of April 19, 1908, to widows of persons who served in the Civil War without regard to their pecuniary condition, and the increase from \$8 to \$12 per month of the rate of pension of certain widows, minor children and helpless minors granted by the first section of this act. The total number of pension certificates issued during the year was 123,742, as compared with 328,676 issued in 1907. The number issued in 1909 was the smallest issued in any year since 1903. During the second session of the Sixtieth Congress 3021 pensions were granted by special acts. During the fiscal year ten original military bounty-land warrants were issued, granting 1560 acres of land. The total number of bounty-land warrants issued to June 30, 1909, was 598,678, amounting to \$68,790,510.

The only pensioner of the Revolutionary War was Mrs. Phoebe M. Palmeter, aged 88 years, of Brookfield, N. Y. She was pensioned by a special act of Congress as the daughter of Jonathan Wooley, who served in a New Hampshire company. The last surviving pensioned soldier of the War of 1812 was Hiram Cronk, of Ava, N. Y., who died May 13, 1905, aged 105 years and 16 days.

During the year 177,581 pension claims were adjudicated, of which 123,610 were admitted, 52,199 rejected and 1772 approved for allowance in which no certificates were issued because they would not have been of benefit to the applicants. The largest number of beneficiaries of any State was in Ohio, where 92,507 persons drew pensions from the government. Pennsylvania is second, with 92,066, New York third, 83,394, Illinois fourth, 66,402, and Indiana fifth, 57,042. There were 2631 pensioners who were residents of Canada, 580 of Germany, 460 of Ireland, 371 of England and 160 of Mexico. A total of 5047 pensioners were residents of foreign countries and the amount paid to them was \$663,607.

The total amount of pensions paid to soldiers, sailors and marines, their widows, minor children and dependent relatives on account of military and naval service since the foundation of the government is as follows: War of the Revolution (estimated), \$70,000,000; War of 1812 (service pensions), \$45,757,396; Indian Wars (service pensions), \$9,995,609; War with Mexico (service pensions), \$42,492,784; Civil War, \$3,686,461,840; War with Spain and insurrection in the Philippine Islands, \$26,383,805; regular establishment, \$15,507,028; unclassified, \$16,484,049, or a total of \$3,913,082,513. The Commissioner of Pensions, Vespasian Warner, resigned from office in November, 1909, and was succeeded by James L. Davenport.

PATENTS

There were during the fiscal year ending June 30, 1909, 62,800 applications for registration of trade-marks; 1001 applications for patents for designs; 192 applications for reissues of patents; 7509 applications for registration of trade-marks; 1001 applications for registration of labels; and 338 applications for registration of prints, or a total of 73,026. The number of patents granted in trade-marks, labels and prints registered in 1909 was 40,772. The applications for patents for inventions increased over 1908 by between 4000 and 5000 cases. The Commissioner of Patents in his annual report points out the necessity of provision for a new building in which ample room will be afforded properly and promptly to transact the business of the office. The present facilities for the work are entirely inadequate. Provision was made by Congress for the additional office of First Assistant Commissioner of Patents beginning July 1, 1909. During 1909 a treaty was negotiated with Germany which confers great benefits upon the American inventor. The patent laws of nearly all the foreign countries contain a clause providing that if an invention is not "worked," that is, manufactured or practiced in such a country within a certain period ranging from two to four years, the patent may be annulled. This treaty with Germany provides that the working of a patent in one of the contracting countries will have the same force and effect, so far as avoiding the revocation of the patent is concerned, as if it had been worked in the country in which the patent was granted. This treaty practically assures to American inventors the protection of their rights in Germany during the full period for which the German patent is issued, contingent only on the working of the invention in one of the two countries.

Congress at its last session appropriated the sum of \$10,000 to defray the expenses of the meeting of the International Union for the Protection of Industrial Property, to be held in Bern, Switzerland, probably in May, 1911. The meeting of this union is most important to the interests of American inventors and manufacturers. The 21 nations which are adherents to this union will be represented by delegates having full power to negotiate agreements in respect to reciprocal protection of patents, designs, trade-marks, and industrial models, which when ratified by their respective governments would have the force of treaties.

NATURALIZATION

Declarations of intention to the number of 143,112 were filed with the clerks of courts exercising naturalization jurisdiction during the fiscal year 1909. This was an increase of 6487 over the number applying in 1908. Of those filed in 1909, 282 were by native-born Americans, who, having renounced their allegiance to the United States, returned and took the preliminary step towards resuming their original status. There was a decrease of 1700 in the number of petitions for naturalization filed, the totals for 1908 and 1909 being respectively 43,878, and 42,178. The number of certificates of naturalization issued, however, shows an increase of 11,820, the total in 1909 being 37,377, against 25,517 in 1908, while there was an increase of practically 100 per cent. of the number of petitioners who were denied citizenship. The denials in most instances were based rather on the failures of petitioners to comply with the requirements of the law than of the lack of necessary qualifications. During the year the number of courts exercising naturalization jurisdiction increased 150 or from 2244 to 2394. This increase was confined altogether to State courts.

Under the criminal provisions of the naturalization law, prosecutions were instituted in 35 cases, with the result that in 7 cases fines were imposed, and in 6 jail sentences were inflicted, while 5 resulted in acquittal and 17 were pending at the close of the year.

CENSUS BUREAU

During 1909 the Bureau of the Census issued 27 publications, 10 being reports of some magnitude and 17 bulletins and pamphlets. The Bureau issues annually statistics on the following subjects: Official statistics of cities containing over 30,000 inhabitants; statistics of ginning, consumption and stocks of cotton; vital statistics of those States and cities which maintain a system of registration of births and deaths, and statistics of forest products, collected and published in co-operation with the forest service of the Department of Agriculture. During the year a census of religious bodies relating to the year 1906 was completed and the results published in a bulletin. The Bureau also completed an investigation of electrical industries covering the year 1907. A special report was also issued on industrial districts and a report entitled *A Century of Population Growth from the First Census of the United States to the Twelfth, 1790 to 1900*. This report contains a complete analysis of the available data regarding the first census of the United States, much of which has not been published hitherto. The Bureau also nearly completed the work of the fisheries statistics and published preliminary bulletins covering several of the States. Much of the time of the census employees during the year was devoted to preparations for the 13th census. The creation of a permanent Census Bureau has proved a great advantage in facilitating such preparation and avoiding the excessive haste which was necessary formerly when the entire census force had to be organized anew between the time of the adoption of the Census act of Congress and the actual enumeration.

On May 26, S. N. D. North, Director of the Census, resigned his position and was succeeded

It was asserted by administrative officials that Mr. North endeavored to exercise a degree of independence which, while not lessening the responsibility of the Department of Commerce and Labor for acts done by the Director of the Census, virtually nullified the Secretary's authority over the Census Bureau. The immediate cause of Mr. North's resignation was a report made to President Taft by Secretary Nagel in regard to conditions in the Census Bureau and the attitude assumed by Director North toward Mr. Nagel.

On July 2, Congress passed bills for the taking of the census of 1910. One bill appropriates \$10,000,000 for the taking of the census, while another presents the qualifications of the census takers. In the winter of 1908 President Roosevelt vetoed a bill which provided for the taking of the census, but which omitted to provide for the appointment of the clerks and other employees by competitive examination under the Civil Service. In the bills passed this defect was remedied. In order that the employees may not be composed disproportionately of persons who live in the District of Columbia, it was provided that the appointees selected for the work must actually have lived for at least one year in the State from which they are named. In a letter to Secretary Nagel on August 16, President Taft showed his intention of keeping the work of gathering the census from the hands of political spoilsmen. He declared that "any man engaged in taking the 13th census who engages in politics in any way will immediately be dismissed from the service." The President ordered the Secretary of Commerce and Labor and the Director of the Census to embody in the regulations governing the taking of the census, rules carrying this condition into effect. While 300 or more supervisors will have the appointment of the enumerators, these supervisors themselves are to be appointed on the recommendation of United States Senators and Representatives, and it was the intention of the President that the personal qualifications of these appointees be carefully inquired into. Neither supervisors nor enumerators must serve on a committee, make political addresses, solicit funds or in any way use their influence for a party or a national, State or local candidate in any election. The penalty for the infringement of this rule is instant dismissal.

The principal respects in which the 13th Census act differs from that provided for the 12th census are as follows: First, the present act provides for a census of mining statistics in 1910, while a census of mining was not taken in 1900 but was taken in 1902; second, the 13th Census act makes no provision for special statistics of births and deaths during the census year as was required at the 12th census. It had been found impossible to secure actual statistics of births and deaths by census methods, and the Census Bureau now confines itself to the publication of annual statistics covering those areas in which State and political governments maintain an efficient registration system; third, the census of population is to be taken in April instead of June as for-

cerning manufactures covered the fiscal year of each concern ending next preceding June 1, 1900, but practically in most cases covered the year 1899; fifth, the act provides for the appointment of a temporary clerical force necessary for census work after Civil Service examination, which was not required by previous acts.

During the fiscal year the Bureau completed its designs and models for a punching machine and a tabulating machine to be used for handling the population statistics in 1910 and contracts were entered into for 300 of the punching and 100 of the tabulating machines. These machines will enable each operator to turn out a much larger number of cards than was possible during the 12th census.

CABINET

The election of Elihu Root, Secretary of State, at the beginning of the year, to the United States Senate by the New York Legislature (see NEW YORK) made the position vacant. On January 25, President Roosevelt appointed Robert Bacon, Assistant Secretary of State under Secretary Root, to fill the office for the remainder of the administration. Mr. Bacon was sworn into office on January 27 and John Callan O'Laughlin was sworn in as Assistant Secretary of State. These officials served until the incoming of President Taft's cabinet.

President Taft did not complete the selection of the members of his Cabinet until late in February. The Cabinet officers as finally chosen were as follows: Secretary of State, Philander Chase Knox, of Pennsylvania; Secretary of the Treasury, Franklin MacVeagh, of Illinois; Secretary of War, J. M. Dickinson of Washington; Secretary of the Navy, George von L. Meyer, of Massachusetts; Secretary of the Interior, Richard A. Ballinger, of Washington; Secretary of Agriculture, James Wilson, of Iowa; Postmaster-General, Frank H. Hitchcock, of Ohio; Attorney-General, George W. Wickersham, of New York; and Secretary of Commerce and Labor, Charles Nagel, of Missouri.

Shortly after Senator Knox had consented to become Secretary of State in President Taft's Cabinet, it was discovered that by a provision of the constitution he was ineligible for the office. This provision provides that "no Senator or Representative shall during the time for which he was elected be appointed to any civil office under the authority of the United States which shall have been created or the emoluments thereof which shall have been increased during such time." During Senator Knox's term in the Senate, the salary of the Secretary of State had been advanced from \$8,000 to \$12,000. Under the provision stated above, he could not, therefore, hold the office. In order to nullify the effects of this provision a bill was immediately introduced into the Senate to reduce the salary of the Secretary of State from \$12,000 to \$8,000. The Senate passed this bill without a dissenting vote. A similar measure was introduced into the House, and some opposition having developed,



Copyright, 1909, by Cincinnati, D. C.

Secretary to President Fred W. Carpenter	Secretary of Commerce and Labor Charles Nagel	Secretary of War John M. Dickinson	Secretary of Interior Richard A. Ballinger
Postmaster General Frank H. Hitchcock	Secretary of Agriculture James Wilson	Secretary of Treasury Franklin MacVeagh	Secretary of Navy George Von L. Meyer
Attorney General George W. Wickersham	Secretary of State Philander C. Knox		The President

PRESIDENT TAFT AND CABINET, 1909

value of the constitutional clause, but the measure was passed according to the action of the Senate, and the bill was immediately signed by President Roosevelt. A few days later it was discovered that the Legislative, Executive and Judicial bill, pending before Congress, contained a provision carrying \$12,000 for the salary of the Secretary of State. The bill was before the House on the report of the Committee on Conference. As there had been no disagreement as to the item relating to the State Department, the conferees were without authority to reduce the salary provided for the Secretary of State. It was therefore necessary to disagree to the conference report and to direct the Committee on Conference to take notice of the item in question and to change it to conform to the expression of the House on the subject. This was done and the Senate also agreed. This action removed any constitutional objection to Mr. Knox's becoming Secretary of State.

Several new bureaus were created in the Department of State by Senator Knox. A new officer to be known as the Counselor of the Department of State was provided for, and Henry M. Hoyt, formerly Solicitor-General of the United States, was appointed. Two experts were added to the existing Bureau of Trade Relations to collect information concerning foreign markets; bureaus of Far Eastern Affairs, of Latin-American Affairs and of Information were formed. At the extra session of Congress \$100,000 was appropriated to enable the Secretary of State to investigate trade conditions in foreign markets and for other purposes. At the last session of the 60th Congress the Senate made provision for a new Secretary and a Fourth Assistant Secretary of State. These provisions were, however, thrown out by the House.

For changes made in the conduct of the diplomatic service see paragraph *Diplomatic Service*, and for records of the different departments during the year see, in general, the paragraphs under the historical section of UNITED STATES, and especially, *Administration*.

DIPLOMATIC SERVICE

A new plan of promotion in the diplomatic service was introduced early in 1909 by Mr. Huntington Wilson, First Assistant Secretary of State, with the authority of the President. Under this plan secretaryships in the diplomatic service are to be classified according to their relative importance, and an efficiency record is to be kept of every officer in the service, so that there may be no promotion except upon well established efficiency, and that there may be no retention except upon the maintenance of an average high standard of efficiency. In addition the Secretary of State is directed to report from time to time to the President the names of those who have shown special capacity. The initial appointments to secretaryships are to be made only to the lowest grades, that is to say, to the third secretaryship of an embassy, second secretaryship of a legation, or secretaryship where the

President Roosevelt issued an executive order providing for examinations for entrance in lower diplomatic grades in 1905, and appointments were made to the higher grades from the lower whenever possible. More extended examinations were also established by Secretary Knox and confirmed by President Taft. Both the Examining Board and the number of subjects for the written examinations have been enlarged, and an oral and physical examination have been added. The subjects on which candidates are examined are as follows:

International law, diplomatic usage, and a knowledge of at least one modern language other than English, to wit, French, Spanish or German; the natural, industrial, and commercial resources and the commerce of the United States, especially with reference to the possibility of increasing and extending the trade of the United States to foreign countries; American history, government, and institutions, and the modern histories since 1850 of Europe, Latin America and the Far East. The oral examination is to determine the candidate's alertness, general contemporary information, and a natural fitness for the service, including mental, moral, and physical qualifications, character, address, and general education, and good command of English. In the determination of the final rating, written and oral readings are to be of equal weight, and the physical examination will be supplemental. No person with a general rating of less than 80 out of 100 is to be eligible. The age limits are between twenty-one and fifty years. Eligible candidates are to be certified to the Secretary, and remain on the list two years.

With the incoming of a new administration there were bound to be many important changes in the Diplomatic Service, and such changes took place during the year. One of the earliest official acts of President Taft was to offer to President Charles W. Elliot of Harvard University the Ambassadorship to the Court of St. James. President Elliot, however, was obliged to refuse the offer, urging his advanced age and disinclination to enter into active diplomatic service. Mr. Whitelaw Reid, who has been American Ambassador to Great Britain since 1905, continued to fill that post during the first year of President Taft's administration, and nothing was said as to his being succeeded by another representative. An appointment of President Taft's which was generally approved, was that of Oscar S. Straus to be Ambassador to Turkey to succeed John G. A. Leishman of Pennsylvania, who was appointed Ambassador to Italy. Mr. Straus had twice before represented the United States at Constantinople. No less important was the appointment of William W. Rockhill as Ambassador to Russia to succeed John W. Riddle of Minnesota, who had been Ambassador since 1906. Mr. Rockhill at the time of his appointment was Minister to China, where he performed efficient service and became intimate with Far Eastern affairs. He was considered as especially qualified to represent the United States at St. Petersburg on account of his knowledge of the Chinese question.

1900 from the Diplomatic Service. John C. A. Leishman, since 1906 Ambassador to Turkey, was appointed Ambassador to Italy, succeeding Lloyd C. Griscom, who resigned from the service. Henry Lane Wilson, who, since 1905, had been Minister to Belgium, was promoted to be Ambassador to Mexico, to succeed David E. Thompson, who resigned from the Diplomatic Service. Richard C. Kerens of Missouri, a well-known business man and politician, was appointed Ambassador to Austria-Hungary, succeeding Charles S. Francis. The other embassies, Brazil, Germany and Japan remained the same.

Probably the most important of the appointments to countries represented by Ministers was that of William J. Calhoun to be Minister to China to succeed W. W. Rockhill, who, as noted above, was transferred to the Embassy at St. Petersburg. President Taft's first choice for the position of Minister to China was Charles R. Crane of Chicago. Mr. Crane accepted the portfolio and was preparing to leave this country to take up his duties when he was recalled from San Francisco by a telegram from Secretary Knox, and following an interview with that official, he presented his resignation, which was accepted. A fuller discussion of this episode will be found in the article UNITED STATES, paragraph, *Administration*. Henry Clay Ide, formerly Governor of the Philippines, was appointed Minister to Spain, succeeding William M. Collier of New York, who had served in that position since 1905. Charles P. Bryan was transferred from Portugal to Belgium, succeeding Henry L. Wilson, who became Ambassador to Mexico. An important appointment was that of H. Percival Dodge, formerly Minister to Salvador, to succeed Samuel Gummere as Minister to Morocco. Among changes in the South American service were appointments of Charles H. Sherrill of New York, Minister to Argentina to succeed Spencer F. Eddy; Elliott Northcott, of West Virginia, to Colombia as successor to Thomas C. Dawson, who succeeded John Hicks as United States Minister to Chile. A Minister was sent to Paraguay for the first time.

For the most part the foreign Ambassadors to the United States remained the same during the year. There were, however, several important changes. A new Turkish Ambassador, Hussein Kiazim Bey, was appointed to succeed Munji Bey, to whom were temporarily assigned the duties of Acting Minister at Washington, following the recall on August 11, 1908, of Mehmed Ali Bey. Hussein Kiazim Bey was the first Turkish Ambassador accredited to this country, although the American representative at Constantinople has had ambassadorial rank for several years. Baron Kogoro Takahira was recalled from the Ambassadorship of Japan by the Japanese government and Baron Yasuga Uchida was appointed in his place. Señor F. L. de la Barra became Mexican Ambassador to the United States, succeeding Enrique C. Creel, who had served since 1907. Señor de la Barra was formerly Mexican Minister to Belgium. He had also served as Minister to Argentina. With these exceptions the Ambassadors of foreign countries remained the same during the

year. Dr. Wu has been recalled from his post as Minister to the United States. He first appeared in that capacity in 1897 and immediately became one of the most picturesque figures in the diplomatic corps. He had perfect command of the English language and his ready wit and genial characteristics made him one of the most popular of the diplomatic representatives to the United States. In 1902 he was suddenly recalled and again appointed in 1908. He was succeeded by Chang Yin Tang, who is said to be in thorough sympathy with the policy of adopting Western ideas in China. General Carlos Garcia Velez succeeded Gonzalo de Quesado as Minister from Cuba to the United States. The Marquis of Villalobar was appointed Minister from Spain to succeed Ramón Piña, and Dr. Paul Ritter became Minister from Switzerland to succeed Leo Vogel. Diplomatic relations with Venezuela, which in 1908 ceased as a result of the difficulties of the United States government with President Castro, were resumed in 1909 on the settlement of this question by the administration of President Gomez. William W. Russell was appointed United States Minister to Venezuela and Don P. Ezequiel Rajas became Venezuelan Minister to the United States. On page 737 will be found a list of representatives of the United States to foreign countries and a list of the representatives accredited to the United States in 1909.

CONSULAR SERVICE

Early in President Taft's administration, Secretary Knox took steps in the plans for Consular Service reorganization. In June he made public a list of fifty changes. Of these 27 were promotions, and 23 were appointments of new men. The most important change was in the office of Consul-General at London. This office has hitherto been given to some prominent party worker and has been regarded as a political office. Senator Knox took it from this category and placed it for the first time among the offices to be filled from the consular ranks. John L. Griffiths of Indiana was made Consul-General. This action is assurance that the entire consular service is to be made a permanent institution, and that all the high offices are to be filled by persons promoted from lower consular offices. All the new appointments were based upon the establishment of a standard of character, ability and efficiency.

The United States Representatives in the chief cities of the world in 1909, including the changes made by Secretary Knox, as indicated above, were as follows: CONSULS-GENERAL-AT-LARGE, George H. Murphy for North America, including Mexico and the Bermudas; Fleming D. Cheshire for Eastern Asia, including Straits Settlements, Australia, Oceania and the Islands of the Pacific; Albert R. Morawetz, South America, Central America, the West Indies and Curaçao; Alfred L. M. Gottschalk for European Asia, the Balkan States, Greece, Asia Minor, Persia, India, as far as the western frontier of the Straits Settlements and Africa; Heaton W. Harris for Europe, except European Asia,

AMBASSADORS

Accredited by United States		Accredited to United States	
Country			
Austria-Hungary.....	Richard C. Kerens, Mo., 1909	Baron Hengelmüller von Hengervár..	1902
Brazil	Irving B. Dudley, Cal., 1906	Joaquim Nabuco	1905
France.....	Robert Bacon, Mass., 1909	J. J. Jusserand.....	1903
Germany.....	David J. Hill, N. Y., 1908	Count Johann Heinrich von Bernstorff	1903
Great Britain.....	Whitelaw Reid, N. Y., 1905	James Bryce	1907
Italy.....	John G. A. Leishman, Pa., 1909	Edmundo Mayor des Planches.....	1906
Japan.....	Thomas J. O'Brien, Mich., 1907	Baron Yasuga Uchida	1909
Mexico.....	Henry L. Wilson, Wash., 1909	Don Francisco de la Barra.....	1909
Russia.....	W. W. Rockhill, D. C., 1909	Baron Rosen	1905
Turkey.....	Oscar H. Straus, N. Y., 1909	Hussein Kiazim Bey	1909

MINISTERS PLENIPOTENTIARY

Argentina Republic...	Charles H. Sherrill, N. Y., 1909	Don Epifanio Portela	1905
Belgium	Charles P. Bryan, Ill., 1909	Count de Blarenghien	1909
Bolivia.....	James F. Stutesman, Ind., 1908	Don Ignacio Calderon	1904
Chile.....	Henry P. Fletcher, Pa., 1909	Don Anibal Cruz.....	1908
China.....	W. J. Calhoun, Ill., 1909	Chang Yin Tang.....	1909
Colombia.....	Elliott Northcott, W. Va., 1909	Don Enrique Cortés.....	1906
Costa Rica.....	William L. Merry, Cal., 1897	Joaquin Bernardo Calvo.....	1899
Cuba.....	John B. Jackson, N. J., 1909	Gen. Carlos Velez.....	1909
Denmark.....	Maurice F. Egan, D. C., 1907	Count Moltke	1908
Ecuador.....	William C. Fox, N. J., 1907	Luis Felipe Carbo	1906
*Greece.....	George H. Moses, 1907	L. A. Coromilas	1906
Guatemala.....	William F. Sands, 1909	Luis Toledo Herrarte.....	1907
Haiti.....	Henry W. Furniss, Ind., 1905	H. Pauleus Sannon.....	1909
Honduras.....	Fenton R. McCreery, Mich., 1905	Dr. Luis Laza	1908
Morocco.....	H. Percival Dodge, Mass., 1909	Jonkherr J. Loudon	1908
†Netherlands.....	Arthur M. Beaupre, Ill., 1908	O. Gude	1908
Nicaragua	Herbert H. D. Peirce, Mass., 1906	C. C. Arosemena	1909
Norway.....	R. S. R. Hitt, Ill., 1906	General Morteza Kahn	1905
Panama.....	E. V. Morgan, N. Y., 1909	Felipe Pardo	1905
Paraguay	Charles W. Russell, D. C., 1909	Viscounte de Alte	1902
Peru.....	Leslie Combs, Ky., 1906	Federico Mejia	1907
Portugal.....	Henry T. Gage, Cal., 1909	Phya Akharaj Varadhara	1901
‡Rumania.....	John R. Carter, 1909	Marquis of Villalobar	1909
Salvador.....	William F. Sands, D. C., 1909	Herman de Lagercrantz	1907
Siam.....	Hamilton King, Mich., 1903	Dr. Paul Ritter	1909
Spain.....	Henry C. Ide, Vt., 1909	Luis Mellan Lafinur	1907
Sweden.....	Charles H. Graves, Minn., 1905	Don P. Ezequiel Rajas	1909
||Uruguay.....	Edward G. O'Brien, N. Y., 1905		
Venezuela.....	William W. Russell, 1909		
Switzerland.....	L. S. Swenson, Minn., 1909		

MINISTERS RESIDENT AND CONSULS

Dominican Republic....	Horace G. Knowles, Del., 1909.
Liberia.....	Ernest Lyon, Md., 1909

DIPLOMATIC AGENTS

Bulgaria.....	John R. Carter, 1909
Egypt.....	Peter A. Jay, N. Y., 1909

* Accredited also to Montenegro.

† Accredited also to Luxemburg.

‡ Accredited also to Servia.

|| Accredited also to Paraguay.

the Balkan States and Greece. CITIES OF EUROPE: Austria: Vienna, Charles Denby; Budapest, Paul Nash; Prague, Joseph B. Brittain; Belgium: Antwerp, Henry W. Diederich; Brussels, Ethelbert Watts; Denmark: Copenhagen, Wallace C. Bond; France: Paris, Frank H. Mason; Bordeaux, Alfred K. Moe; Havre, James E. Dunning; Marseilles, Alphonse Gaulin; German Empire: Berlin, Alexander M. Thackera; Bremen, William T. Fee; Hamburg, Robert T. Skinner; Great Britain: London, John L. Griffiths; Birmingham, Albert Halstead; Dublin, Edwin L. Adams; Edinburgh, Rufus Fleming; Glasgow, John M. McCann; Liverpool, Horace Lee, Washington; Manchester, Church Howe; Greece: Athens, George Horton; Italy: Rome,

Chapman Coleman; Naples, Caspar S. Crowninshield; Florence, Jerome A. Quay; Netherlands: Amsterdam, Henry H. Morgan; Rotterdam, Soren Listoe; Norway: Christiana, Henry Bordewich; Portugal: Lisbon, Louis H. Aymé; Rumania: Bucharest, Roland B. Harvey; Russia: Moscow, John H. Snodgrass; St. Petersburg, Jacob E. Conner; Spain: Madrid, Charles L. Hoover; Barcelona, Frank D. Hill; Sweden: Stockholm, Edwin D. Winslow; Switzerland: Bern, George Heimrod; Turkey: Constantinople, Edward H. Ozmun; Alexandria, David R. Birch; Cairo, Louis M. Iddings. CITIES OF ASIA: China: Shanghai, Amos P. Wilder; Canton, Leo A. Bergholz; Harbin, Roger S. Green; Tientsin, Samuel S. Knabenshue; Japan: Yoko-

also, United in Warsaw; Colombia: Bogota; Charles L. Latham; Paraguay: Asuncion, Cornelius Ferris, Jr.; Peru: Callao, Samuel M. Taylor; Uruguay: Montevideo, Frederick W. Goding; Venezuela: La Guayra, Isaac A. Manning; Costa Rica: Port Limon, Chester Donaldson; Honduras: Ceiba, Drew Linard; Nicaragua: Bluefields, Thomas P. Moffatt; Salvador: San Salvador, Arthur Hugh Frazier; Cuba: Havana, James Linn Rogers; Mexico: City of Mexico, Arnold Shanklin; Monterey, Philip C. Hanna.

CUSTOMS

In addition to the action taken against the sugar trust in relation to fraudulent weighing, the government carried on during the year several successful transactions for fraud in the New York Custom House. These convictions were the result of an investigation which has continued since 1907, and which resulted in the bringing to light of a great system of conspiracy to defraud the government by false weighing and by other means. An investigation was started in the fall of 1907 as the result of a request made of the United States district weigher for advance information as to the weight of certain importations of figs consigned to a Greek importer doing business in New York. The suspicions of the customs authorities were aroused and the consignment on which information was asked, was reweighed. It was found to weigh a third as much again as when previously weighed by the assistant weigher. Several other importations which had come in by the same steamer were also reweighed, and it was found that the weights in these exceeded those previously made, some of them being almost double. Measures were at once taken for an extensive investigation into these frauds. Importations carried on two ships of the Austro-American Line, comprising cheese and figs for various Greek and Italian importers, were found to have increased in weight from one-third to one-half during the voyage. George F. Lamb, an attorney in the law department of the Custom House, was assigned by Edward S. Fowler, then Collector of the Port, to investigate these frauds. It was evident that false Consular invoices were a part of the swindling scheme, and Mr. Lamb went to the chief points of export for the Mediterranean trade in Italy, Greece, and Turkey. In these countries the merchants must swear to the weight of their export shipments before their custom house officers. The shipments are then weighed by government officers by way of verification and the duties are assessed and collected before they are released for export. Mr. Lamb, after much opposition on the part of powerful local interests, discovered an organized band of exporters with headquarters in Calamata and Patras in Greece who were in league with importers in New York and Philadelphia. It was the habit of these exporters to state the correct weight in the export declarations before the authorities of their own governments. They would then go before an American Consul and swear to a weight from one-third to one-half less. This weight would then be incorporated in the Con-

same day or the next day, to the agents of the steamship companies and state still a third weight for the same goods. It would be less than the correct weight given in the first instance to their own governments and more than the false weight given to the United States Consul. As the steamship companies charge by weight, they too were defrauded. The Port of New York was at this time divided into five weighing districts. In charge of each district was a United States weigher. These were responsible to the Surveyor of the Port, who is the outside executive for the Collector of the Port. Each weigher had an office in his district which was in charge of a foreman, and the actual weighing was done by assistant United States weighers stationed on the piers. The treasury regulations required that these actual weighers be frequently shifted, but means were found to evade this and it was so arranged that they were left on the piers for several years at a time. These weighers received from the combination of exporters in return for their fraudulent weighing a substantial percentage of the amount received as the result of the fraud. The weigher first weighed the goods and made a record of their true weight on a memorandum. He would then meet the importer at some place agreed upon and learn from him the invoiced or fraudulent weight of the goods. He would subtract the fraudulent from the true weight and estimate the saving in duties thus effected. The importer would then pay to the government officer a cash sum equal to half the evaded duty. The weigher would thereupon return to the pier and enter in his official dock book the fraudulent weight minus an imaginary allowance for shrinkage. Upon the weights given in this book the duties were estimated and collected. The assistant weigher was supposed to give one-half his spoils to his foreman, and he in turn was supposed to give one-half his share to the United States weigher in charge of the district, and he to divide one-half his booty with an official in the Custom House itself. Some of these foremen received as much as \$2000 a month as their share of the money paid for these frauds. The official in the Custom House used his authority to keep in charge of the weighing only members of the combination. If investigations were carried on as the result of suspicions of fraudulent transactions, this officer would first pigeon-hole the report for several months and then refer them for further inquiry to the United States weigher in whose district the weighing occurred. After many months the investigator would report that the goods, having passed into consumption, could not be traced.

By careful investigation, Mr. Lamb, the United States District Attorney, obtained legal proof necessary to prove the existence of this system in court. The first case was that of the United States against Simon W. Mescall, an assistant United States weigher, and S. S. Stamatopoulos, a Greek importer. This case was tried in January, 1908. A week before the opening of the trial, Mescall, through his attorney, offered to turn state's evidence.



Copyright, 1908, by Harris & Ewing

RUFUS W. PECKHAM
Associate Justice
Died, 1909



Photograph by Brown Bros., New York

HORACE HARMON LURTON
Appointed Associate Justice, 1909

THE UNITED STATES SUPREME COURT

make a full confession, and take a stand against the importer in return for immunity from prosecution. This offer was, however, afterwards withdrawn. After a ten days' trial a verdict of acquittal for both defendants was brought in by the jury. The second case brought by the government also resulted in acquittal, and the government found itself helpless unless they could find some one of the indicted persons who would turn state's evidence. After the trial of these cases the operations of the combination temporarily ceased, although the system was kept intact.

When William Loeb, Jr., became Collector of the Port of New York in March, 1909, he at once took up the fight against frauds in the Custom House. His first problem was how to secure the conviction of some of the importers and Custom House officials, whose guilt had already been established by circumstantial evidence. He was advised by Mr. Lamb that an offer of retention in the service be added to that of immunity, in order that some of the suspected persons might be induced to confess. After conferring with Secretary MacVeagh, it was decided that this was the only possible means of securing conviction, and this offer was made. Three United States assistant weighers at once accepted this offer of immunity and retention in the service. The case was brought against Antonio and Philip Musica for false weighing of a cargo of cheese. These assistant weighers took the stand and told in detail the whole story of corruption. Their evidence was so powerful that, after the government had presented its case, Philip Musica changed his plea from "not guilty" to "guilty," and was sentenced to one year of imprisonment in Elmira Reformatory and a fine of \$5000. A civil action is now being brought for the restitution of evaded duties. It is estimated that the firm has been evading at least \$12,000 worth of duties annually and probably much more. The action of the Collector in retaining in service these avowedly guilty persons resulted in drastic criticism, but he was upheld by the Secretary of the Treasury. It was affirmed that this was the only possible method of securing conviction. With the information of these men, added to the evidence gathered by Mr. Lamb, indictments were found against five of the members of the system in the Custom House itself, as well as against five large importing houses. As a result of these convictions and investigations the system was thoroughly broken at the end of the year.

FEDERAL JUDICIARY

A vacancy was caused in the United States Supreme Court by the death on October 24, of Associate Justice Rufus W. Peckham (q. v.). The place was filled by the appointment on December 13 of Judge Horace H. Lurton (q. v.). As Judge Lurton was more than 60 years of age, there was considerable discussion as to the propriety of his appointment, but there was no opposition in the Senate, and the appointment was promptly ratified. The United States Supreme Court at the end of 1909 was composed as follows, with the dates of appointment: Chief Justice Melville W. Fuller, of Illinois, 1888; John M. Harlan, of Kentucky, 1877; David J. Brewer, of Kansas, 1889; Edward D. White, of Louisiana, 1894; Horace H. Lurton, of Kentucky, 1909; Joseph McKenna, of California, 1898; Oliver

W. Holmes, of Massachusetts, 1902; William R. Day, of Ohio, 1903; and William H. Moody, of Massachusetts, 1906.

The United States Supreme Court handed down several important decisions during the year. The most notable of these related to trusts and corporations, and they will be found discussed in the article TRUSTS, and in the articles dealing with kindred subjects. Among the most notable of these decisions was that in regard to the commodities clause of the Railway Rate law (see RAILWAYS). A decision relating to the great fine of the Standard Oil Company was also awaited with great public interest. See STANDARD OIL COMPANY.

A decision which attracted wide attention was handed down by the United States Court of Appeals in October, confirming the decision of the lower court as to the guilt of Charles W. Morse in misappropriating the funds of banks in New York City. Mr. Morse was convicted in 1908, and was sentenced to a term of 15 years in the Federal Prison. After having spent several months in jail pending an appeal, he was finally released on \$250,000 bail. The Court of Appeals held that no important errors had been made in the trial of the case, and that Mr. Morse was plainly guilty of the crime charged against him. The case was carried to the United States Supreme Court on certain technicalities, and was sustained by that tribunal, and Mr. Morse was taken to the Federal Prison at Atlanta, Georgia, to begin his term.

The so-called Panama libel cases referred to in the section *Congress*, were dismissed by the United States courts in Indiana and New York, on the ground that there was no statute under which such cases could be tried. See *Congress*.

POLITICS AND GOVERNMENT

SIXTIETH CONGRESS. The second session of the 60th Congress met on December 3, 1908. During the summer recess two of the most conspicuous of the members of the Senate had died, William B. Allison, of Iowa, and Redfield Proctor, of Vermont. Governor Albert B. Cummins was elected to fill the place left vacant by Senator Allison and John Wolcott Stewart was elected to fill the vacancy caused by Governor Proctor's death. By a subsequent election of the Vermont Legislature Carroll S. Page was elected to succeed him. The death of Senator Allison left vacant the chairmanship of the Committee on Appropriations, which he had filled for many years. Senator Hale of Maine, who was next in seniority, was assigned to this chairmanship.

On December 8, President Roosevelt submitted his seventh and last annual message to Congress. Among his important recommendations was the modification of the Sherman Anti-Trust law, so that large combinations not formed to effect monopolies or against public interests might not be affected. He recommended also that railroads be taken out of the scope of the Sherman act and placed under the restriction of the Interstate Commerce Commission. Much of the message was taken up with matters relating to Federal courts and he expressed the desire that some method should be found for doing away with the law's delays. The most sensational part of the message, however, was the section criticising Congress for passing an amendment at its last session to the clause of the Appropriation bill which made provision for the

that this amendment has been a benefit only, and could be of benefit only to the criminal classes. If deliberately introduced for the purpose of diminishing the effectiveness of war against crime, it could not have been better devised to this end. It forbade the practices that have been followed to a greater or less extent by the executive heads of the various departments for twenty years. . . . These practices have enabled us to discover some of the most outrageous frauds in connection with the acquisition of government lands and government timber by great corporations and by individuals. These practices have enabled us to get some of the facts indispensable in order to secure the conviction of the wealthiest and the most formidable criminals with whom the government has to deal. . . . The chief argument in favor of the provision was that the Congressmen do not themselves wish to be investigated by the Secret Service men. Very little of such investigation has been done in the past, and it is true that the work of the Secret Service agents was particularly responsible for the indictment and conviction of a Senator and of a Congressman for land frauds in Oregon. I do not believe that it is in the public interest to protect criminals in any branch of the public service, and exactly as we have again and again during the last seven years prosecuted and convicted such criminals who were in the executive branch of the government, so in my belief we should be given ample means to prosecute them if found in the legislative branch, but if this is not considered desirable a special exception could be made in the law prohibiting the use of the Secret Service force in investigating the members of Congress. It would be far better to do this than to do what actually was done and strive to prevent or hamper effective action against criminals by a legislative act of the government."

The Senators and Representatives professed to see in this statement a virtual declaration that Congressmen had restricted the operations of the government Secret Service because they did not themselves wish to be investigated, and great indignation was expressed in both branches of Congress against this alleged accusation by the President. Resolutions were passed by the Senate and House and committees were appointed to investigate the President's charges. The House committee reported that it could not find in the hearings before the committee or in the records of the House or Senate any justification of this impeachment of the honor and integrity of Congress. It was also resolved that the President be requested to transmit to the House any evidence upon which he based his statement and also to transmit to the House any evidence connecting any member of the House of Representatives of the 60th Congress with corrupt legislation in his official capacity and to inform the House whether he has instituted proceedings for the punishment of any such individuals by the courts or has reported any such alleged delinquencies to the House of Representatives. The President deferred any reply to this action of the Senate and the House until after the Christmas holidays. On January 4 he replied in a message, in which he disavowed

and the House voted to lay on the table those portions of the message relating to the Secret Service.

Among several special messages sent by the President to Congress was one transmitting the draft of a bill to replace the present law under which the United States could proceed in time of emergency to raise a voluntary army. A special message was sent also in relation to the Brownsville affair. See paragraph *Brownsville Affair*.

Another sensational message was sent on December 15 as a result of accusations of corruption in connection with the sale of its rights to the Panama Canal by France to the United States. In this message the President emphatically denied such charges and characterized them as libelous and scurrilous. The chief responsibility for the circulation of these charges he placed upon Joseph Pulitzer, the owner of the New York World, and incidentally against Delavan Smith, editor of the Indianapolis News, as being responsible for the circulation of these rumors from the matter obtained from the New York World. The President insisted that there had been nothing in the transaction between the United States and France in connection with the Panama Canal which required an investigation. He expressed the opinion that suit for libel of the government should be brought against Mr. Pulitzer, and added that the Attorney-General was considering the form that the prosecution should take. The matter stated in the newspapers relating to this transaction involved Charles P. Taft, half-brother of William H. Taft, and Douglas Robinson, brother-in-law of President Roosevelt. Action on this message was deferred until Congress had met again following the Christmas holiday recess. See *Federal Judiciary*.

Congress adjourned on December 19 until January 4, 1909.

The first legislative act of Congress on its reassembling was the voting of \$800,000 for relief work at Messina, Italy.

On January 6 in reply to a request from the Senate asking for information from Attorney-General Bonaparte as to the absorption by the United States Steel Corporation of the Tennessee Coal and Iron Company, President Roosevelt sent a special message declining to permit the Attorney-General to furnish the data requested. The President declared that he had been advised that in his opinion no sufficient ground existed for legal proceedings against the Steel Corporation, and that the situation had been in no wise changed by its acquisition of the Tennessee Coal and Iron Company. He declared that he had given to the Senate the information on the subject which appeared to be material and relevant and he added that he had instructed the Attorney-General not to respond to that portion of the resolution which called for a statement of his reasons for this action. He added, "I have done this because I do not conceive it to be within the authority of the Senate to give directions of this character to the head of an executive department or to demand from him reasons for this action. Heads of executive departments are sworn to the Constitution and the laws passed by the



Copyright by Pach Bros., New York

ELIHU ROOT
New York



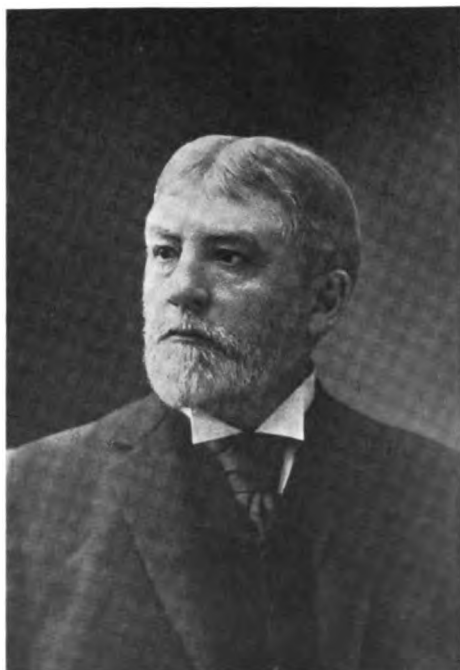
Courtesy of the "Review of Reviews"

NELSON W. ALDRICH
Rhode Island



Copyright, 1908, by Harris & Ewing

HERNANDO D. MONEY
Mississippi



Copyright, 1908, by Harris & Ewing

EUGENE HALE
Maine

FOUR PROMINENT UNITED STATES SENATORS

gress in pursuance of the Constitution and to the direction of the President of the United States, but to no other direction whatever." The President stated that the facts in regard to the purchase of the Tennessee Coal and Iron Company were as follows: Mr. E. H. Gary and Mr. H. C. Frick in behalf of the Steel Corporation in November, 1907, called on the President during the panic of that year and told him that the purchase of the Tennessee Coal and Iron Company was urged upon them by responsible bankers in New York as the only means of preventing a failure that might prove disastrous to the entire community; that its purchase would leave the Steel Corporation owners of not to exceed 60 per cent. of the Steel properties of the United States, and they asked the President if the acquisition of the Tennessee Coal Company would be regarded by him as a violation of the law. The President replied that while he could not advise them to take the action proposed, he felt it no public duty of his to interpose any objection. The President was subsequently advised by the Attorney-General that there were no legal grounds for proceedings against the Steel Corporation and that the purchase of the Tennessee Coal Company would constitute no grounds for such prosecution. As a result of the action of the President in refusing to permit the Attorney-General to give the information required, on January 8 the Senate adopted a resolution directing its judicial committee to investigate the absorption of the Tennessee Coal and Iron Company by the United States Steel Corporation.

On January 7, President Roosevelt in a private communication to Senator Hale relating to his message on the Secret Service and the action of the Senate Committee thereon, made certain statements concerning Senator Tillman as pointing his case of the value of secret service agents' investigations. These charges were the result of an investigation made by the Department of the Interior and the findings of this report were included in President Roosevelt's letter to Senator Hale. The accusations against Senator Tillman had to do with a transaction in public lands in which, according to this report, he was pecuniarily interested. According to these charges it had been proposed by a certain timber and land syndicate in Oregon that the government should institute action against the Central Pacific Railroad Company to compel it to comply with the conditions on which it had obtained public land, namely, to open part of this land to sale to individuals, or else to procure the restoration of these lands to the public domain in order that they might be opened to entry by individuals as are other public lands. Senator Tillman was asked to introduce a law to this effect, and did so, and it was alleged that arrangements were made by him with certain attorneys acting for the syndicate to locate for him and seven members of his family, as well as for his private secretary, quarters of this land. The syndicate, which aimed to control this property, sent out circulars for the promotion of their sale and included in it the statement that among those who had spoken for a part of this land was Senator Tillman. In his letter to Senator Hale the President recalled that Senator Tillman on February 19, 1908 in a speech on the floor of the Senate denounced

the statement made in this circular and called for an investigation as to his relations with the syndicate. Such an investigation was carried on by the post-office inspectors, who obtained private correspondence that passed between Senator Tillman and persons who were alleged to represent him in the proposed land deals. This correspondence seemed to indicate that Senator Tillman was making arrangements to buy the land at the same time that he was urging the Senate to pass a resolution requiring the restoration of the lands in question to the public domains, so that they might be available for purchase, and it was further alleged that Senator Tillman had denied in the Senate on February 19, 1908, that he had undertaken to buy any of the land and that he had, on February 15, four days before, written a letter to a firm in Marshfield, Oregon, expressing a desire to purchase land, and asking that several sections be reserved for him. This correspondence was made public on January 8 and created a considerable sensation in the Senate. On January 12, Senator Tillman made a formal reply to the charges made against him. He went into the land transaction in which he was engaged and claimed that so far from concealing his part in it, he had been responsible for the investigation, and had told the Attorney-General and secret service officers all about his desire to purchase some of the land, which, through his efforts, was to be forfeited to the government by the Central Pacific Railroad Company. As to his statement in the Senate, when in denouncing the use of his name by the syndicate to attract purchasers he said he had not undertaken to buy any of the land in question, Senator Tillman explained that he "was perhaps disingenuous." He declared, however, that he had used the word "undertaken" in the meaning of "contracted" and contended that he had gone no further than to negotiate for the purchase of some of the land then held by the Railroad Company. Senator Tillman accused President Roosevelt of having been actuated by motives of personal spite in endeavoring to make a scandal of the former's connection with the proposed land purchase. He declared that he wished the fullest investigation of his connection with the matter in question. On January 14, Senator Tillman again spoke in defense of his land transactions, replying to statements derogatory to his dealings made by Secretaries Bonaparte and Meyer.

On January 12, Senator Foraker delivered a speech on the Brownsville episode, which was devoted almost entirely to the presentation of evidence to show that the private detectives employed by the Administration to obtain confessions from some of the negro soldiers discharged without honor from the 25th United States Infantry had been guilty of willful perjury and subornation of perjury. Senator Lodge replied to this speech defending the action of the President. On January 18 the Senate voted to increase the salary of the Speaker to \$15,000, and on the following day voted to increase the President's salary to \$100,000 a year. On January 21, a bill was passed in the Senate increasing the salary of 29 circuit and 84 district judges.

On January 20 the House, by a unanimous vote and without debate, adopted resolutions reported by the Committee on Judiciary, declaring vacant the seat of George L. Lilley,

declared that Mr. Lilley's tender of his resignation to the Governor in itself vacated his seat, and it was affirmed as a principle of common law that he could not hold two such offices as Governor of Connecticut and Representative from the State at one and the same time. On January 22 a message was sent to Congress by President Roosevelt transmitting the report of the National Conservation Commission and an inventory of natural resources. On the same day the Senate passed the legislative appropriation bill retaining the provision making the President's salary \$100,000. On January 26 the Senate passed an Anti-Opium bill (see OPIUM). The bill forbids the importation into the United States after April 1, 1909, of smoking opium in any form or any preparation or derivation thereof. Opium, other than smoking opium, may be imported for medicinal purposes only under regulations which the Secretary of Agriculture is authorized to establish. The bill was introduced by Senator Lodge. On February 1 it was passed also by the House.

On January 27 the Senate confirmed the nomination of Robert Bacon as Secretary of State to succeed Elihu Root, and John C. O'Laughlin as Assistant Secretary of State. On January 29 statements were read in the House by Charles P. Taft and William Nelson Cromwell, denying charges made in connection with the Panama Canal purchase (see above). On February 4 the House voted to strike out from the agricultural appropriation bill the appropriation for the proposed pure food referee board. On February 5 President Roosevelt vetoed the census bill passed by Congress. He based his veto upon the ground that the bill was a vicious application of the spoils system and that it did not provide for the appointment of special census takers under the civil service law. (See *Census Bureau*.) On February 6 the House passed a bill amending the bankruptcy law. The electoral votes cast for President and Vice-President were counted on February 10 in a joint session of the Senate and the House, and the election of Taft and Sherman was formally announced by Vice-President Fairbanks. On February 11 the Senate passed a bill introduced by Senator Hale designed to allow Mr. Knox to accept the portfolio of the Secretary of State (see *Cabinet*). A joint resolution was also passed making February 12 a special legal holiday in the District of Columbia and the Territories in honor of Abraham Lincoln. The House on February 15 passed a bill similar to the Senate bill, reducing the salary of the Secretary of State to obviate the constitutional bar to the services of Senator Knox in that capacity. A bill was also passed in the House providing for separate Statehood for Arizona and New Mexico. The Senate on February 16 amended the Naval Appropriation bill so that in the discretion of the President one-half of the navy shall be kept in Pacific coast waters. The size of the two battleships provided for was limited to 21,000 tons each, and the purchase of powder from any trust except in war time was prohibited. On the same day the House passed a bill in-

17 transmitted to Congress a report of the engineers who accompanied Mr. Taft to Panama (see PANAMA CANAL.) The Senate on February 18 ratified the agreement between the United States and Great Britain providing for the submission to the Hague Tribunal of the Newfoundland fisheries dispute. (See *Foreign Affairs*.) On the same day the House passed a bill amending the penal code. On February 23 the Senate passed a bill introduced by Senator Aldrich providing for a commission to consider the case of the negro soldiers discharged as a result of the Brownsville affair (q. v.).

On February 20 the sub-committee of the Senate Committee on the Judiciary appointed to investigate and report whether the President exceeded his authority in permitting the merger of the Tennessee Coal and Iron Company by the United States Steel Corporation, effected its report. The report was a sweeping condemnation of the President's action. See TRUSTS.

On February 25 the House adopted an amendment to the Sundry Civil Service appropriation restricting the secret service, and on the following day it passed a bill refusing an appropriation for the prosecution of the United States Steel Corporation for absorbing the Tennessee Coal and Iron Company. On February 27 the House passed the bill previously passed by the Senate, providing an opportunity for the negro soldiers of the Twenty-fifth Infantry to make themselves eligible for reinstatement. (See *Brownsville Affair*.) On February 27, as a result of charges of corruption, jury bribing, and other offenses made against certain officials and leaders in the respective Territories the bills for the admission of New Mexico and Arizona as States were dropped. On March 1 the House passed the Forest Reserve bill and on the following day by a vote of 172 to 175 defeated the Postal Subvention bill. On March 3 both branches of Congress agreed to the Conference report of the Legislative Appropriation bill increasing the President's salary by \$25,000. On the same day the House passed an amended copyright bill. The Senate on March 4 ratified the Canadian boundary waters treaty and adjourned. The House completed its unfinished business and also adjourned.

In addition to the important legislation which it enacted, the most conspicuous feature of the Sixtieth Congress was, perhaps, the unprecedented number of treaties which it ratified. These numbered 58, and included 24 arbitration treaties, 11 conventions submitted by the second Hague Peace Conference, extradition, naturalization and trade-mark treaties, the Newfoundland fisheries agreement and a treaty with Great Britain relating to the use of the boundary waters between the United States and Canada. A second particular in which the Sixtieth Congress is unique is in the unprecedented amounts appropriated. In the first session the appropriations reached a total of \$1,008,000,000, and for the second, \$1,044,000,000, a total of nearly \$200,000,000 more than the record of the Fifty-ninth Congress. During both sessions no less than 38,000 bills were introduced into the two Houses. Out of

only law, replacing the one pronounced unconstitutional by the Supreme Court; a government liability law to compensate Federal employees injured in the discharge of their duty; a child labor law for the District of Columbia; increased pay and vacations for the life-saving service; authorizing the Interstate Commerce Commission, in the promotion of the safety of employees and passengers, to prescribe regulations for the transportation of explosives by common carriers; tariff inquiry begun preliminary to revision; emergency currency providing a tax to insure retirement as soon as stringency disappears; national monetary commission created; militia made an integral part of the national military establishment; the pay of the army increased; the army medical corps increased, and a reserve medical corps created; the naval enlisted force increased; two battleships, ten torpedo-boat destroyers, three steam colliers and eight submarines authorized; consular service reorganized; the repeal of application of coastwise laws to the Philippines; the remission to China of part of the Boxer indemnity. Among the most important acts of the second session were the appropriation of \$800,000 to relieve the Italian earthquake sufferers; the prohibition of the importation and use of smoking opium; saving the Calaveras big trees of California; the extension for two years of the Burton bill limiting the amount of water taken from Niagara Falls; the codification of the penal laws; an amendment and consolidation of the copyright laws, chiefly to protect composers against the unauthorized use of their works in instruments for the mechanical and automatic reproduction of music; permission to the discharged negro soldiers of the Twenty-fifth Infantry to reenlist on establishing their innocence in the Brownsville affair; increase of the President's salary to \$75,000; and the authorization of the Liberian Commission. Of the bills passed by this session the President vetoed nine. Among these the most important was the bill which provided for the taking of the thirteenth census without placing employees under civil service regulations. Congress did not attempt to pass these measures over the President's veto. Several important measures failed to become a law because of the failure of Congress to act upon them. Among these were bills establishing a ship subsidy, and making Arizona and New Mexico States. The secret service provision was left practically where it was in 1908, and no action was taken regarding the Federal regulation of water rights on navigable streams or on bond issues for waterway improvement. It failed also to act, in spite of requests from the Governors of over forty States, on a law continuing and providing for a national conservation commission. The measures which it passed tended to discourage the President from continuing this or other commissions.

The total of the appropriations of the second session of the Sixtieth Congress were \$1,044,401,857. This amount was divided as follows: Agriculture, \$12,995,036; army, \$101,195,833; diplomatic and consular, \$3,613,861; District of Columbia, \$10,609,531; fortification, \$8,170,111; Indian, \$11,854,982; legislative, executive and judicial, \$32,007,149; Military Academy, \$2,-

ment appropriations, \$100,090,082. In addition to the specific appropriations made, contracts were authorized to be entered into for certain public works, requiring future appropriations by Congress to the aggregate sum of \$26,080,875. These contracts covered the following objects and amounts: For construction of sea-coast batteries in the Philippine Islands, \$600,000; two first-class battleships, one collier, six torpedo-boat destroyers and four submarine torpedo boats, including estimated cost of armament, \$24,845,000; and for the improvement of certain rivers and harbors, \$635,875.

A comparison of the total appropriations of the first session of the Sixtieth Congress, \$1,008,397,543, with those of the second session, \$1,044,401,857, shows an increase of \$36,004,313.

SIXTY-FIRST CONGRESS. Immediately on the adjournment of the Sixtieth Congress the Senate of the Sixty-first Congress was called to order by Vice-President Sherman and the new members were sworn in.

Many changes took place in the personnel of the Senate as the result of the elections of November, 1908, and as the result of death. Senator Allison of Iowa was succeeded by Albert B. Cummins, and Senator Teller of Colorado, another veteran of the Senate, was succeeded by Charles James Hughes, Jr. Elihu Root of New York took the place of Thomas C. Platt, and Senator Foraker of Ohio gave place to Theodore E. Burton. George E. Chamberlain of Oregon, though a Democrat, was elected Senator by a Republican legislature, as a result of the primary law of that State. Benjamin F. Shively of Indiana was the first Democrat elected to the Senate from that State since 1893. He is the only Democratic Senator north of the Mason and Dixon line as far west as Colorado. William O. Bradley of Kentucky succeeded Senator McCreary; Joseph L. Bristow of Kansas succeeded Senator Long; Coe I. Crawford of South Dakota succeeded Senator Kittredge; M. N. Johnson of North Dakota succeeded Senator Hansbrough, and Wesley L. Jones of Washington succeeded Senator Ankeny; and Senator Brandegee of Connecticut, Clark of Arkansas, Gallinger of New Hampshire, Gore of Oklahoma, Heyburn of Idaho, Newlands of Nevada, Penrose of Pennsylvania, Smoot of Utah, Stephenson of Wisconsin and Stone of Missouri were elected to succeed themselves.

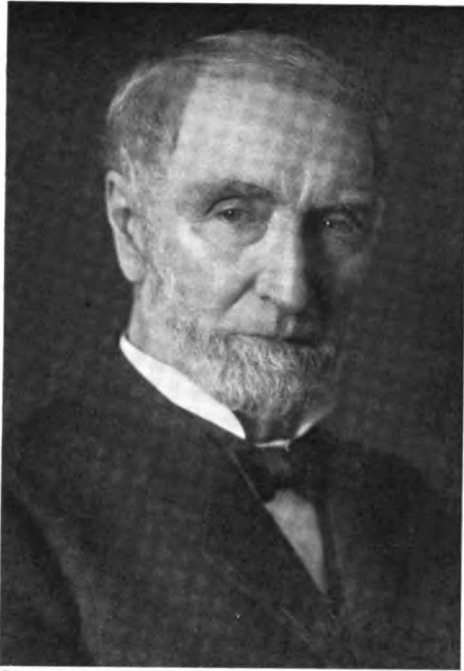
The exercises in connection with the inauguration of President Taft were held in the Senate Chamber and on their conclusion the Senate adjourned (see *Inauguration*). On January 15 Congress met in special session to consider the preparation of the tariff bill, and on January 16 the President's message, pointing out the necessity for the revision of the tariff, was received. That part of the deliberation of Congress relating to this measure will be discussed under the paragraph *Tariff*. (See also *TARIFF*.) The opening of Congress was formalized in the House by a congressional prayer by Speaker Cannon and certain members of the House, who had become dissatisfied with the powers over the deliberations of Congress vested by the Speaker. These members were popularly known as "insurgents" and for a long time opposed the

the new House be governed by the previously existing rules, 31 Republican members joined with the Democrats and defeated the motion. Champ Clark, the Democratic leader, then made a motion which embodied in a general way the views of the Democrats and Republican insurgents. This provided for the adoption of the rules of the last Congress, with certain exceptions, the most important of which called for the direct election by the House of its own Committee on Rules, to consist of 15 members. This committee was also to report to the House in December, 1909, upon the whole subject of rules revision. The Speaker was meanwhile to appoint the necessary working committees for the short session. This proposal was defeated, largely as a result of the desertion from the insurgents of a group of Democrats, led by Representative Fitzgerald of New York. The latter proposed a so-called compromise resolution, which was adopted. This resolution gives rather more freedom of debate than has hitherto been enjoyed in the House, and provides for the recommitment of bills to reporting committees when there is no general desire on the part of the House to have such bills changed in certain particulars. The bill provides also for a calendar Wednesday, a plan under which bills on the calendar can be taken up each Wednesday in their regular order. A third amendment renders it permissible to order a bill sent back to its committee after the previous question has been moved. Speaker Cannon declared himself entirely satisfied with the Fitzgerald amendment. On March 16 the Speaker announced the personnel of the Rules, and Ways and Means Committees of the House. They were, in general, the same committees which had served in the preceding Congress. On March 17 Representative Payne, chairman of the Ways and Means Committee, introduced the tariff bill in the House. It was referred back to the committee. The House passed on the 18th a bill providing for the taking of the thirteenth census, and on the following day a new ship subsidy bill was introduced. The Senate, on April 10, passed a census bill. On May 10 a special message was sent to Congress by President Taft, recommending the amendment of the Foraker act under which Porto Rico is governed. The President called the attention of Congress to the political condition of Porto Rico, and the importance of prompt Congressional action. He declared that the situation was of unusual gravity as a result of the fact that the Legislative Assembly of Porto Rico had failed to pass the necessary appropriations to meet public expenditures, the effects of which would be to leave the island without financial support at the close of the fiscal year 1909. He dealt with the situation in vigorous language and declared that the Porto Ricans had forgotten the debt of gratitude that they owed to the United States for their liberty. He charged that the political leaders in Porto Rico had shown a disposition to put their personal motives above patriotism, and recommended taking away from them the power of appropriating money. He recommended also that there should be sub-

out that he had proposed to the members of the Porto Rican House of Representatives that if they would pass the necessary appropriation bills, he would send a representative of the United States government to Porto Rico to make an investigation of the legislation proposed by the House and rejected by the Council. This, he said, was refused, and the representatives would consider no proposal that did not include acceptance by the Council of the legislation or certain important parts of it, which the Council had rejected. He stated the issue to be as follows: "The question whether the proposed legislation should be enacted into a law was left by a fundamental act of Congress to the joint action of the Executive Council and the House of Delegates as a legislative assembly. The House of Delegates proposes itself to secure this legislation without respect to the opposition of the Executive Council, or else to pull down the whole government." He declared that this spirit, which has been growing from year to year in Porto Rico, shows that too great power has been vested in the House of Delegates and that its members are not sufficiently alive to their responsibilities for the maintenance of the government to justify Congress in further reposing in them absolute power to withhold appropriations necessary for the government's life.

He proposed as an immediate remedy an amendment to the Foraker act similar to the provision made by Congress in the organic law of Hawaii and the Philippines: that if the Legislative Assembly shall at any time adjourn without making the necessary appropriations for the ensuing year, a sum equal to the appropriations of the preceding year shall be available for the carrying on of the government. The President gave a résumé of the history of the ten years' occupation of Porto Rico by the United States, and pointed out the immense benefits financially, socially, and educationally that the Porto Ricans had derived from American rule. He declared that the troubles of the island were caused, not so much by differences between political parties or by dissatisfaction on the part of the Porto Ricans in general with the American government, but were rather an attempt by the party in control of the House of Delegates to compel the United States government to change its own legislation so as to give that party control, not only of the Lower House, but of the Upper House and of the whole insular government and insular revenues, whether local or Federal.

On May 11 Senator Depew introduced a bill for the relief of the civil government of Porto Rico in the manner suggested by President Taft's message. The House and the Senate having agreed upon a census bill appropriating ten million dollars for the taking of the next census, the bill received its final passage on June 26. On June 7 the House passed the bill offered by Representative Olmsted of Pennsylvania in accordance with the suggestions made in the President's message in regard to the government of Porto Rico and on July 9 a similar bill was passed by the Senate. On August 4 the House passed the Urgent Defi-



Copyright by Pach Bros., New York

JOSEPH G. CANNON
Illinois
Speaker of the House of Representatives



Copyright by Pach Bros., New York

CHAMP CLARK
Missouri



Copyright, 1908, by Harris & Ewing

JAMES A. TAWNEY
Minnesota



Copyright by Pach Bros., New York

SERENO E. PAYNE
New York

FOUR PROMINENT MEMBERS OF THE UNITED STATES HOUSE OF REPRESENTATIVES

ciency Appropriation bill, which included an item of \$25,000 for the President's traveling expenses.

Just before the final adjournment of the House, August 5, Speaker Cannon made public the personnel of the House committees for the succeeding session. Much interest, both inside Congress and out, had centered in this list on account of the disposition to be made by the Speaker of the members of prominent committees who had been most actively opposed to his administration as Speaker. Among the foremost of the insurgent representatives who were deposed from important chairmanships were Representatives Cooper of Wisconsin, Fowler of New Jersey, and Gardner of Massachusetts. Mr. Cooper was chairman of the Committee on Insular Affairs; Mr. Fowler, chairman of the Committee on Banking and Currency, and Mr. Gardner, chairman of the Committee on Industrial Arts and Expositions. Each of these representatives was succeeded by a man who had especially espoused the cause of the regular organization as opposed to the insurgent body. Mr. Olmsted of Pennsylvania was made chairman of the Insular Committee; Mr. Vreeland of New York was placed at the head of the Committee on Banking and Currency, and Mr. Rodenburg of Illinois was given the chairmanship of the Committee on Industrial Arts and Expositions. With the exception of these representatives the important committees were left practically unchanged. Mr. Murdock of Kansas, who had been perhaps the most conspicuous of the opponents of Speaker Cannon, was not removed from his place on the Committee on Post-Offices and Post Roads. The chairmen of the most important committees were as follows: Ways and Means, Sereno E. Payne of New York; Appropriations, James E. Tawney of Minnesota; Judiciary, Richard W. Parker of New Jersey; Rivers and Harbors, D. S. Alexander of New York; Interstate and Foreign Commerce, James R. Mann of Illinois; Agriculture, Charles F. Scott of Kansas; Foreign Affairs, James B. Perkins of New York; Military Affairs, John A. T. Hull of Iowa; Naval Affairs, George E. Foss of Illinois; Public Lands, Frank W. Mondell of Wyoming; Banking and Currency, Edward B. Vreeland of New York.

SECOND SESSION. The second regular session of the Sixty-first Congress opened on December 6. There was one vacancy in the Senate due to the death of Martin N. Johnson during the recess. Mr. Johnson was succeeded by Fountain L. Thompson. Senator McLaurin of Mississippi was ill at the opening of the session and later died. Mr. Culberson of Texas, the minority leader of the Senate, resigned his position, and Hernando De Soto Money of Mississippi was chosen leader of the minority. President Taft's first regular message to the Senate was read on December 7. It proved to be a calm, judicial paper, from which discussion of many of the most important questions before Congress and the country were omitted for various reasons. Discussion of trust regulations and the amendment to the anti-trust laws was postponed to a later message. This was also true of recommendations relating to conservation of natural resources and kindred subjects. A large part of the message was taken up by the report of the relations of the government to foreign nations, forming a résumé of the po-

litical history of the United States in its foreign relations during the current year. The President earnestly recommended the favorable action of Congress toward the reorganization of the State Department upon modern lines in a manner to make it a thoroughly efficient instrument in the furtherance of foreign trade and of foreign interests abroad. He commended to the consideration of Congress the question of embodying in a statute the principles of the executive order upon which the efficiency of the consular service is wholly dependent. The most important question presented to the administration, in the opinion of the President, is that of economy in expenditure and sufficiency of revenue. He referred to the fact of the discovery of extensive frauds in the collection of the customs revenue in New York City and said that it seemed to him that the investigation of the frauds by Congress at present, pending the probing of the Treasury Department and the Department of Justice, might, by giving immunity and otherwise, prove an embarrassment in securing the conviction of the guilty parties.

In the matter of the tariff, President Taft referred especially to the maximum and minimum clause and the Tariff Board, and expressed the opinion that no tariff war with foreign countries will result from the operation of the former, as it is interpreted by him. The work of the Tariff Board, he said, would perhaps occupy two or three years, and he asked from Congress a continuing appropriation equal to that already made for its prosecution. He said that he believed that the work of the Board would be of prime utility and importance whenever Congress should deem it wise again to readjust the customs duties. There was nothing in the President's message which implied any immediate changes along the line of tariff legislation. The President recommended legislation providing for the appointment by him of a commission with authority to examine the law and equity procedure of the Federal courts of first instance, the law of appeals from these courts to the courts of appeal and to the Supreme Court, and the costs imposed in such a procedure upon private litigants and upon the public treasury, and to make recommendation with a view to simplifying and expediting the procedure as far as possible and making it as inexpensive as may be to the litigant of little means. President Taft recommended that appropriate legislation be adopted in compliance with the platform of the Republican party, to uphold at all times the authority and integrity of the courts, State and Federal, and that the procedure of the Federal courts with respect to the issuance of the writ of injunction should be more accurately defined by statute, and that no injunction or temporary restraining order should be issued without notice, except where an irreparable injury would result through delay, in which case a speedy hearing thereafter should be granted. Among other matters discussed in the message were: Second-class mail matter, postal savings banks, which the President earnestly recommended; ship subsidy, a measure for which he recommended passage; the admission of New Mexico and Arizona as States; Alaska, for whose government he recommended legislation providing for the appointment by the President of a governor and also of the Executive Council; the white slave trade, and political contributions in elections.

California submitted a resolution to the Senate, calling for all the papers relating to the Alaska coal land cases, which were embraced in the charges of Louis R. Glavis, the special land agent, against Secretary Ballinger. (See *President Taft's Administration*.) This resolution was passed, and Senator Jones of Washington thereupon read to the Senate a letter from Secretary Ballinger in which he demanded a thorough investigation made of the charges against him and his subordinates. No action was taken in regard to the investigation previous to the holiday recess, but it was decided that a joint committee of the House and Senate, to consist of six members of each body, should be appointed to inquire into the propriety of Senator Ballinger's conduct while Commissioner of the General Land Office, as well as head of the Interior Department. It was announced on December 21 that on Janu-

with the anti-trust law.

An important bill was introduced in the House of Representatives by Mr. Mondell, chairman of the Committee on Public Lands. The object of this bill was to conserve the deposits of coal in the public domain and to prevent monopoly and extortion in its distribution. The bill provides either a leasing system, by which title to the lands shall remain in the government under proper regulation and supervision by the Secretary of the Interior, or by the sale of the deposits with restrictions on their mining and use, which will control the minimum output and conserve the deposits as a public utility under similar regulations. This measure is, in general, in accord with the recommendations of Mr. Ballinger, Secretary of the Interior, in his annual report. See article PUBLIC LANDS.

CONGRESSIONAL REPRESENTATION. In the following table is given a list of the Senators and Representatives in the Sixty-first Congress:

Republicans in roman; Democrats in *italics*.

ALABAMA.

SENATORS.

*Joseph F. Johnston.** *John H. Bankhead.†*

REPRESENTATIVES.

Democrats, 9.

<i>George W. Taylor.</i>	<i>Henry D. Clayton.</i>	<i>J. Thomas Heflin.</i>	<i>John L. Burnett.</i>
<i>Stanley H. Dent, Jr.</i>	<i>William B. Craig.</i>	<i>Richmond P. Hobson.</i>	<i>William Richardson.</i>
	<i>Oscar W. Underwood.</i>		

ARKANSAS.

SENATORS.

*James P. Clarke.** *Jeff Davis.†*

REPRESENTATIVES.

Democrats, 7.

<i>Robert B. Macon.</i>	<i>John C. Floyd.</i>	<i>Charles O. Reid.</i>	<i>R. Minor Wallace.</i>
<i>William A. Oldfield.</i>	<i>Ben Cravens.</i>	<i>Joseph T. Robinson.</i>	

CALIFORNIA.

SENATORS.

*George C. Perkins.** *Frank P. Flint.†*

REPRESENTATIVES.

Republicans, 8.

<i>William F. Englebright.</i>	<i>Julius Kahn.</i>	<i>James McLachlan.</i>	<i>Joseph R. Knowland.</i>
<i>Duncan E. McKinlay.</i>	<i>Everis A. Hayes.</i>	<i>Sylvester C. Smith.</i>	<i>James C. Needham.</i>

COLORADO.

SENATORS.

Simon Guggenheim.† *Charles J. Hughes, Jr.**

REPRESENTATIVES.

Democrats, 3.

At large—*Edward T. Taylor.*

Aterson W. Rucker. *John A. Martin.*

CONNECTICUT.

SENATORS.

Morgan G. Bulkeley.† *Frank B. Brandegee.**

REPRESENTATIVES.

Republicans, 5.

At large—*John Q. Tillson.*

<i>E. Stevens Henry.</i>	<i>Nehemiah D. Sperry.</i>	<i>Edwin W. Higgins.</i>	<i>Ebenezer J. Hill.</i>
--------------------------	----------------------------	--------------------------	--------------------------

DELAWARE.

SENATORS.

Henry A. du Pont.† *Harry A. Richardson.†*

REPRESENTATIVE.

At large—*William H. Heald.*

* Term expires 1915. † Term expires 1913. ‡ Term expires 1911.

FLORIDA.

SENATORS.

James P. Taliaferro.†*Duncan U. Fletcher.**

REPRESENTATIVES.

Democrats, 3.

*Stephen M. Sparkman.**Frank Clark.**Dannette H. Mays.*

GEORGIA.

SENATORS.

Augustus O. Bacon.†*Alexander S. Clay.**

REPRESENTATIVES.

Democrats, 11.

*Charles G. Edwards.**William C. Adamson.**Gordon Lee.**Thos. W. Hardwick.**James M. Griggs.**Leonidas F. Livingston.**William H. Howard.**Wm. G. Brantley.**Dudley M. Hughes.**Charles L. Bartlett.**Thomas M. Bell.*

IDAHO.

SENATORS.

*Weldon B. Heyburn.***William E. Borah.*†

REPRESENTATIVE.

At large—*Thomas R. Hamer.*

ILLINOIS.

SENATORS.

Shelby M. Cullom.†*William Lorimer.**

REPRESENTATIVES.

Democrats, 6; Republicans, 19.

*Martin B. Madden.**Frederick Lundin.**Frank O. Lowden.**William B. McKinley.**James R. Mann.**Thomas Gallagher.**James McKinney.**Henry T. Rainey.**William W. Wilson.**Henry S. Boutell.**George W. Prince.**James M. Graham.**James T. McDermott.**George E. Foss.**Joseph V. Graff.**William A. Rodenberg.**Adolph J. Sabath.**Howard M. Snapp.**John A. Sterling.**Martin D. Foster.**William J. Moxley.**Charles E. Fuller.**Joseph G. Cannon.**Pleasant T. Chapman.**Napoleon B. Thistlewood.*

INDIANA.

SENATORS.

Albert J. Beveridge.†*Benjamin F. Shively.**

REPRESENTATIVES.

Democrats, 11; Republicans, 2.

*John W. Boehue.**Lincoln Dixon.**Charles A. Korbly.**Edgar D. Crumpacker.**William A. Cullop.**Ralph W. Moss.**John A. M. Adair.**George W. Rauch.**William E. Coz.**William W. Barnard.**Martin A. Morrison.**Cyrus Cline.**Henry A. Barnhart.*

IOWA.

SENATORS.

Jonathan P. Dolliver.† *Albert B. Cummins.**

REPRESENTATIVES.

Democrat, 1; Republicans, 10.

*Charles A. Kennedy.**Gilbert N. Haugen.**John A. T. Hull.**Frank P. Woods.**Albert F. Dawson.**James W. Good.**William D. Jamieson.**Elbert H. Hubbard.**Charles E. Pickett.**Nathan E. Kendall.**Walter I. Smith.*

KANSAS.

SENATORS.

Charles Curtis.†*Joseph L. Bristow.**

REPRESENTATIVES.

Republicans, 8.

*Daniel R. Anthony, Jr.**Philip P. Campbell.**William A. Calderhead.**Edmond H. Madison.**Charles F. Scott.**James M. Miller.**William A. Reeder.**Victor Murdock.*

KENTUCKY.

SENATORS.

Thomas H. Paynter.† *William O. Bradley.**

REPRESENTATIVES.

Democrats, 8; Republicans, 3.

*Ollie M. James.**Ben Johnson.**J. Campbell Cantrill.**John W. Langley.**Augustus O. Stanley.**Swagar Sherley.**Harvey Helm.**Don. C. Edwards.**Robert Y. Thomas, Jr.**Joseph L. Rhinock.**Joseph B. Bennett.*

* Term expires 1915. † Term expires 1913. ‡ Term expires 1911.

REPRESENTATIVES.

Albert Estopinal.
Samuel L. Gilmore.

Robert F. Broussard. Joseph E. Ransdell.
John T. Watkins. Robert C. Wickliffe.

Arsène P. Pujo.

MAINE.

SENATORS.

Eugene Hale.†

William P. Frye.†

REPRESENTATIVES.

Republicans, 4.

Amos L. Allen.

John P. Swasey.

Edwin C. Burleigh.

Frank E. Guernsey.

MARYLAND.

SENATORS.

Isidor Rayner.†

John Walter Smith.*

REPRESENTATIVES.

Democrats, 3; Republicans, 3.

J. Harry Covington.

John Kronmiller.

Sydney E. Mudd.

J. Fred'k C. Talbott.

John Gill, Jr.

George A. Pearre.

MASSACHUSETTS.

SENATORS.

Henry Cabot Lodge.†

W. Murray Crane.†

REPRESENTATIVES.

Democrats, 3; Republicans, 11.

George P. Lawrence.

Butler Ames.

John A. Keliker.

William S. Greene.

Frederick H. Gillett.

Augustus P. Gardner.

Joseph F. O'Connell.

Wm. C. Lovering.

Charles G. Washburn.

Ernest W. Roberts.

Andrew J. Peters.

Charles Q. Tirrell.

Samuel W. McCall.

John W. Weeks.

MICHIGAN.

SENATORS.

Julius C. Burrows.†

William Alden Smith.†

REPRESENTATIVES.

Republicans, 12.

Edwin Denby.

Edward L. Hamilton.

Henry McMorran.

George A. Loud.

Charles E. Townsend.

Gerrit J. Diekema.

Joseph W. Fordney.

Francis H. Dorda.

Washington Gardner.

Samuel W. Smith.

Jas. C. McLaughlin.

H. Olin Young.

MINNESOTA.

SENATORS.

Knute Nelson.†

Moses E. Clapp.†

REPRESENTATIVES.

Democrat, 1; Republicans, 8.

James A. Tawney.

Charles R. Davis

Frank M. Nye.

Andrew J. Volstead.

Winfield S. Hammond.

Frederick C. Stevens.

Charles A. Lindbergh.

Clarence B. Miller.

Halvor Steenerson.

MISSISSIPPI.

SENATORS.

Hernando D. Money.*

James Gordon.††

REPRESENTATIVES.

Democrats, 8.

Ezekiel S. Candler, Jr.

Benj. G. Humphreys.

Adam M. Byrd.

William A. Dickson.

Thomas Spight.

Thomas U. Sisson.

Eaton J. Bowers.

James W. Collier.

MISSOURI.

SENATORS.

William J. Stone.*

William Warner.†

REPRESENTATIVES.

Democrats, 9; Republicans, 6; vacancy, 1.

James T. Lloyd.

William P. Borland.

Champ Clark.

Politte Elvins.

William W. Rucker.

Richard Bartholdt.

Charles A. Crow.

Joshua W. Alexander.

Courtney W. Hamlin.

Patrick F. Gill.

Charles H. Morgan.

Charles F. Booher.

Dorsey W. Shackelford.

Harry M. Coudrey.

Arthur P. Murphy.

MONTANA.

SENATORS.

Thomas H. Carter.*

Joseph M. Dixon.†

REPRESENTATIVE.

At large—Charles N. Pray.

* Term expires 1915.

† Term expires 1913.

‡ Term expires 1911.

†† Temporary appointments



CONFERENCE ROOM—SENATE OFFICE BUILDING



**THE OFFICE BUILDING OF THE UNITED STATES SENATE
WASHINGTON, D. C.**

NEBRASKA.

SENATORS.

Elmer J. Burkett.†

Norris Brown.†

REPRESENTATIVES.

Democrats, 3; Republicans, 3.

*John A. Maguire.**Gilbert M. Hitchcock.*

Edmund H. Hinshaw.

Moses P. Kinkaid.

James P. Latta.

George W. Norris.

NEVADA.

SENATORS.

*Francis G. Newlands.**

George S. Nixon.†

REPRESENTATIVES.

At large—*George A. Bartlett.*

NEW HAMPSHIRE.

SENATORS.

Jacob H. Gallinger.*

Henry E. Burnham.†

REPRESENTATIVES.

Republicans, 2.

Cyrus A. Sulloway.

Frank D. Currier.

NEW JERSEY.

SENATORS.

John Kean.†

Frank O. Briggs.†

REPRESENTATIVES.

Democrats, 3; Republicans, 7.

Henry C. Loudenslager.

Ira W. Wood.

Richard Wayne Parker.

James A. Hamill.

John J. Gardner.

Charles N. Fowler.

William H. Wiley.

Benjamin F. Howell.

*William Hughes.**Eugene F. Kinkaid.*

NEW YORK.

SENATORS.

Chauncey M. Depew.†

Elihu Root.*

REPRESENTATIVES.

Democrats, 11; Republicans, 26.

William W. Cocks.

William Sulzer.

John E. Andrus.

Charles L. Knapp.

*George H. Lindsay.**Charles V. Fornes.*

Thomas W. Bradley.

Michael E. Driscoll.

Otto G. Foelker.

Michael F. Conry.

Hamilton Fish.

John W. Dwight.

Charles B. Law.

Herbert Parsons.

William H. Draper.

Serenio E. Payne.

Richard Young.

William Willett, Jr.

George N. Southwick.

James B. Perkins.

William H. Calder.

J. Van Vechten Olcott.

George W. Fairchild.

J. Sloat Fassett.

*John J. Fitzgerald.**Francis B. Harrison.*

Cyrus Durey.

James S. Simmons.

Daniel J. Riordan.

William S. Bennet.

George R. Malby.

*Daniel A. Driscoll.**Henry M. Goldfogle.**Joseph A. Goulden.*

Charles S. Millington.

De Alva S. Alexander.

Edward B. Vreeland.

NORTH CAROLINA.

SENATORS.

*F. M. Simmons.†**Lee S. Overman.**

REPRESENTATIVES.

Democrats, 7; Republicans, 3.

*John H. Small.**Edward W. Pou.**Robert N. Page.*

John G. Grant.

Claude Kitchin.

John M. Morehead.

Charles H. Cowles.

*Charles R. Thomas.**Hannibal L. Godwin.**Edwin Y. Webb.*

NORTH DAKOTA.

SENATORS.

Porter J. McCumber.†

Fountain L. Thompson.*

REPRESENTATIVES.

Republicans, 2.

At large—*Asle J. Gronna; Louis B. Hanna.*

OHIO.

SENATORS.

Charles Dick.†

Theodore E. Burton.*

REPRESENTATIVES.

Democrats, 8; Republicans, 13.

Nicholas Longworth.

Matthew R. Denver.

Albert Douglas.

David A. Hollingsworth.

Herman P. Goebel.

J. Warren Keifer.

Edward L. Taylor, Jr.

*William A. Ashbrook.**James M. Cox.*

Ralph D. Cole.

Carl C. Anderson.

James Kennedy.

*William E. Tou Velle.**Isaac R. Sherwood.**William G. Sharp.*

W. Aubrey Thomas.

Timothy T. Ansberry.

Adna R. Johnson.

James Joyce.

Paul Howland.

James H. Cassidy.

* Term expires 1915. † Term expires 1913. ‡ Term expires 1911.

OKLAHOMA.

SENATORS.

*Thomas P. Gore.***Robert L. Owen.†*

REPRESENTATIVES.

Democrats, 2; Republicans, 3.

*Bird McGuire.**Dick T. Morgan.**Charles E. Creager.**Charles D. Carter.**Scott Ferris.*

OREGON.

SENATORS.

Jonathan Bourne, Jr.† *George E. Chamberlain.**

REPRESENTATIVES.

Republicans, 2.

*Willis C. Hawley.**William R. Ellis.*

PENNSYLVANIA.

SENATORS.

*Boies Penrose.***George T. Oliver.‡*

REPRESENTATIVES.

Democrats, 5; Republicans, 27.

*Henry H. Bingham.**William W. Griest.**Benjamin K. Focht.**Arthur L. Bates.**Joel Cook.**Thomas D. Nicholls.**Marlin E. Olmsted.**A. Mitchell Palmer.**J. Hampton Moore.**Henry W. Palmer.**John M. Reynolds.**Jonathan N. Langham.**Reuben O. Moon.**Alfred B. Garner.**Daniel F. Lafcan.**Nelson P. Wheeler.**William W. Foulkrod.**John H. Rothermel.**Charles F. Barclay.**William H. Graham.**George D. McCreary.**Charles C. Pratt.**George F. Huff.**John Dalzell.**Thomas S. Butler.**William B. Wilson.**Allen F. Cooper.**James Francis Burke.**Irving P. Wanger.**John G. McHenry.**John K. Tener.**Andrew J. Barchfeld.*

RHODE ISLAND.

SENATORS.

*Nelson W. Aldrich.***George P. Wetmore.†*

REPRESENTATIVES.

Republicans, 2.

*William P. Sheffield.**Adin B. Capron.*

SOUTH CAROLINA.

SENATORS.

*Benjamin R. Tillman†**Ellison D. Smith.**

REPRESENTATIVES.

Democrats, 7.

*George S. Legare.**Wyatt Aiken.**David E. Finley.**Asbury F. Lever.**James O. Patterson.**Joseph T. Johnson.**J. Edwin Ellerbe.*

SOUTH DAKOTA.

SENATORS.

*Robert J. Gamble.†**Coe I. Crawford.**

REPRESENTATIVES.

Republicans, 2.

At large—Eben W. Martin, Charles H. Burke.

TENNESSEE.

SENATORS.

*James B. Frazier.‡**Robert L. Taylor.†*

REPRESENTATIVES.

Democrats, 8; Republicans, 2.

*Walter P. Brownlow.**Cordell Hull.**Lemuel P. Padgett.**George W. Gordon.**Richard W. Austin.**William C. Houston.**Thetus W. Sims.**John A. Moon.**Joseph W. Byrns.**Finis J. Garrett.*

TEXAS.

SENATORS.

*Charles A. Culberson.***Joseph W. Bailey.†*

REPRESENTATIVES.

Democrats, 16.

*Morris Sheppard.**Jack Beall.**George F. Burgess.**John H. Stephens.**Martin Dies.**Rufus Hardy.**Albert S. Burleson.**James L. Stayden.**Gordon Russell.**A. W. Gregg.**Robert L. Henry.**John N. Garner.**Choice B. Randell.**John M. Moore.**Oscar W. Gillespie.**William R. Smith.*

* Term expires 1915. † Term expires 1913. ‡ Term expires 1911.

UTAH.

SENATORS.

Reed Smoot.* George Sutherland.†

REPRESENTATIVE.

At large—Joseph Howell.

VERMONT.

SENATORS.

William P. Dillingham.* Carroll S. Page.†

REPRESENTATIVES.

Republicans, 2.

David J. Foster. Frank Plumley.

VIRGINIA.

SENATORS.

John W. Daniel.† Thomas S. Martin.†

REPRESENTATIVES.

Democrats, 9; Republican, 1; vacancy, 1.

William A. Jones.
Harry L. Maynard.
John Lamb.

James Hay.
Edward W. Saunders. Charles C. Carlin.
Carter Glass. C. Bascom Slemp.

Henry D. Flood.

WASHINGTON.

SENATORS.

Samuel H. Piles.† Wesley L. Jones.*

REPRESENTATIVES.

Republicans, 3.

William E. Humphrey. William W. McCredie. Miles Poindexter.

WEST VIRGINIA.

SENATORS.

Stephen B. Elkins.† Nathan B. Scott.†

REPRESENTATIVES.

Republicans, 5.

William P. Hubbard.

George C. Sturgiss. Joseph Holt Gaines.
James A. Hughes.

Harry C. Woodyard.

WISCONSIN.

SENATORS.

Robert M. La Follette.† Isaac Stephenson.*

REPRESENTATIVES.

Democrat, 1; Republicans, 10.

Henry A. Cooper.
John M. Nelson.
Arthur W. Kopp.

William J. Cary. John J. Esch.
William H. Stafford. James H. Davidson.
Charles H. Weiss. Gustav Küstermann.

Elmer A. Morse.
Irvine L. Lenroot.

WYOMING.

SENATORS.

Francis E. Warren.† Clarence D. Clark.†

REPRESENTATIVE.

At large—Frank W. Mondell.

DELEGATES FROM TERRITORIES.

ALASKA.

James Wickersham.

ARIZONA.

Ralph H. Cameron.

HAWAII.

J. Kuhio Kalanianaʻole.

NEW MEXICO.

William H. Andrews.

RESIDENT COMMISSIONERS.

PHILIPPINE ISLANDS.

Benito Legarda. Manuel L. Quezon.

PORTO RICO.

Tulio Larrinaga.

* Term expires 1915. † Term expires 1913. ‡ Term expires 1911.

noted in the section *Congress*. The resignation of Mr. Root as Secretary of State was made necessary by his election as Senator from New York (see *NEW YORK*). Mr. Robert Bacon, Assistant Secretary of State, was promoted to be Secretary of State to fill the interim (see *Cabinet*). On February 12, Mr. Roosevelt made an address at the dedication of the Lincoln Memorial at Hodgenville, Ky. (see *CENTENARIES AND ANNIVERSARIES*). On February 22 he welcomed the ships of the returning Atlantic fleet from their tour around the world (see *Navy*.)

Following the inauguration of President Taft Mr. Roosevelt went at once to his home in Oyster Bay, N. Y., where he remained until his departure on March 23 for his hunting trip in British East Africa. During 1909-10 he contributed a remarkable series relating to his hunting experiences to *Scribner's Magazine*. It was announced that Mr. Roosevelt would return to the United States about June 1, 1910.

INAUGURATION. Inauguration Day, March 4, was marred by one of the most severe snowstorms in years. This interfered greatly with the arrangements made and proved a great hardship to thousands of people who had come from all over the country to witness the ceremonies. In spite of this, however, they were carried out with dignity and impressiveness. At ten o'clock in the morning the two Houses of Congress met for the clearing up of the last remnants of legislative business. A few minutes before twelve o'clock a committee of Representatives and Senators waited upon President Roosevelt and informed him that Congress had completed its business and was prepared to adjourn if he had no other communications to make.

The first ceremony of the inauguration is the induction into office of the Vice-President, a ceremony which marks the end of one Congress and the beginning of another. It is customary for the Vice-President to be inaugurated in the Senate Chamber and the President in the stand on the south side of the Capitol. On this occasion, however, weather conditions were so severe that for the first time in sixty-three years the President, as well as the Vice-President, took the oath of office in the Senate Chamber. Upon the floor of the Chamber were the members of the two Houses of Congress, all the incoming members, justices of the Supreme Court, ambassadors and ministers from foreign countries, governors of States, and representatives of the army and navy. The Democratic leader in the Senate at the noon hour offered a resolution thanking Vice-President Fairbanks for his courteous and impartial administration as presiding officer of the Senate during his term. A few minutes later Mr. Sherman took the oath of office as Vice-President. Mr. Fairbanks delivered a farewell address and at its close declared the Senate adjourned without day. President Roosevelt had previously issued a proclamation convening the Senate in extraordinary session immediately, and Mr. Sherman at once called the body to order. Following a short address by the Vice-President the new members

inaugural address, which lasted about half an hour. Among the paragraphs to which special attention was paid were those relating to the problem of exclusion and general treatment in the United States of Oriental peoples, and those dealing with the questions arising from the negro problem. Following the inauguration came the inaugural parade from the Capitol to the White House. The weather had somewhat improved, but the streets and sidewalks were covered with melting snow and the route was swept by a searching wind from the north. In spite of this, however, President Taft and Vice-President Sherman stood on the reviewing stand and for three hours reviewed the parade. At the head of the militia from the States rode a dozen governors. The parade also included bodies of regular troops, infantry, cavalry, coast and field artillery and engineers, and detachments from the war ships of the battle fleet. The ceremonies of the day concluded with an inaugural ball in the Pension Building at which the President and Vice-President with their families appeared.

PRESIDENT TAFT'S ADMINISTRATION. The event of the first year of President Taft's administration which over-shadowed all others was the passage and enactment into law of the Tariff Bill. A full discussion of this subject will be found in the article *TARIFF* and in the sections under that heading below. The Cabinet had been completed some time prior to the inauguration (see *Cabinet*), but the President made, shortly after he had assumed office, several important appointments. Among these was the appointment of William Loeb, Jr., to be Collector of the Port of New York. It was understood that President Roosevelt especially desired that Mr. Loeb should receive this office. For details of its administration by him, especially with regard to the American Sugar Refining Co., see the article *TRUSTS*, and for customs frauds in general, the section *Customs* above. Other important appointments were those of Huntington Wilson of Illinois to be Assistant Secretary of State, and Beekman Winthrop of New York, to be Assistant Secretary of the Navy. Among the judicial appointments made by the President in the first month of the administration were the following: United States district judges: Alabama, William I. Grubb, Northern District; Minnesota, Charles A. Willard, District of Minnesota; Washington, George Donworth, Eastern District; associate justice of the Supreme Court of the Territory of Arizona, Edwin M. Doe, of Arizona. An appointment which took on added interest from the fact that the appointee was a Democrat, was that of Henry Groves Connor to be Federal Judge of the Eastern District of North Carolina. This appointment was taken to mean that President Taft intended to recognize the Democrats of the South in the making of judicial and other appointments. See below.

On March 27 the President announced the appointment of a budget committee of Cabinet members to supervise estimates of Federal expenses. This committee is to act as an advisory board in the preparation of the esti-

mates for the expenses of the government. The cabinet budget committee is to have general supervision of the executive departments with a view to keeping the estimates of expenditures within the government's estimated income. Similar committees were appointed by the House and the Senate and these are to act in coördination with the Cabinet committee.

One of the first acts of the President was to offer the ambassadorship to Great Britain to President Charles W. Eliot of Harvard University, but this offer President Eliot was obliged to decline (see *Diplomatic Service*). The ministry to China was the first important ministry which President Taft attempted to fill, and this he offered to Charles R. Crane of Chicago. Mr. Crane accepted the appointment, but on account of circumstances which later arose he resigned the position. For the discussion of this and other diplomatic appointments during the year, see *Diplomatic Service*.

An incident occurred in May which was taken to signify that President Taft did not intend to take any part in the disputes of political factions in the States. An attempt had been made in Kansas to have it appear that the President had taken sides in the controversy between Senator Curtis and former Senator Long, and Governor Stubbs and Senator Bristow, by appointing as assistant to the Attorney-General of the United States a man who was identified with the party headed by Governor Stubbs and Senator Bristow. Immediately after the appointment several newspapers in Kansas friendly to Governor Stubbs and Senator Bristow, claimed that the appointment marked the end of Senator Curtis's influence. When this was called to the attention of President Taft, he directed Attorney-General Wickersham to revoke the appointment, and declared that Governor Stubbs had "thoughtlessly placed us in a position that is entirely indefensible."

On May 19 and 20 President Taft visited Virginia and North Carolina in order to be present at the dedication of the soldiers' monument at Petersburg, erected by the State of Pennsylvania, and the celebration of the anniversary of the Mecklenburg Declaration of Independence, which was commemorated in the city of Charlotte, N. C. He took advantage of the latter occasion to make a statement of the policy he intended to pursue toward the South. He declared emphatically that the best way in which he could fulfill his pledges was by putting into office, regardless of party affiliations, men in whom the community at large would have confidence. "That," he said, "I am trying to do, and I am going to appoint Republicans and I am going to appoint Democrats, striving in each case to get a man who will commend himself to the community in which he lives." He emphasized also the great desirability of upbuilding in every State an intelligent and effective opposition for the reason that in order to be sure of having a good government it is necessary to have a good opposition. To that end he asked for a greater tolerance of public opinion in the South, and expressed his conviction that such tolerance would soon be approved.

During the session of Congress, President Taft was occupied chiefly with routine matters and with questions which concerned the tariff measure. After the latter had been signed he left

Washington to take up his summer residence in Beverly, Mass., where he carried on the executive business of the government.

THE BALLINGER-PINCHOT CONTROVERSY. The friction between Secretary Ballinger of the Interior Department and Gifford Pinchot, Chief Forester, proved the most vexing question with which the President had to deal during the first year of his administration. While this controversy did not become public until August, it had its beginning in the administration of President Roosevelt, over the withdrawal of certain public lands from entry. During the latter part of the Roosevelt administration, Mr. Ballinger, who was then Commissioner of the General Land Office, disagreed with Mr. Pinchot, who had the support of Mr. Garfield, then Secretary of the Interior, and of President Roosevelt. One of the last acts of the latter was to withdraw from entry 1,500,000 acres of land in Montana and Wyoming, to prevent alleged attempts towards acquisition of water power sites by a great corporation. When Mr. Ballinger became Secretary of the Interior, this order was rescinded, and the lands were thrown open to entry, on the ground that the large withdrawals made by President Roosevelt were not warranted by a strict interpretation of the law. Mr. Pinchot resented this action, and at a speech at the Irrigation Congress, at Spokane, in August, he declared that "to follow blindly the letter of the law without intelligent regard both for its spirit and for the public welfare, is nearly as dangerous as to disregard the law altogether." He furthermore declared that the water power trust was endeavoring to absorb rights which belong to the people. It was generally assumed that Mr. Pinchot's speech was a direct attack upon Secretary Ballinger, and a controversy at once arose over the respective policies of the two officials. This discussion, however, was soon overshadowed by another which arose indirectly from it. During the progress of the newspaper discussion, charges were made by L. R. Glavis, chief of the Field Division of the General Land Office, that Secretary Ballinger had used his influence in the period from his resignation as Commissioner of the Land Office, in 1908, to the time when he was appointed as Secretary of the Interior, to bring about the patents of certain Alaska coal lands, known as the Cunningham claims, which were alleged to be based on fraudulent and unlawful claims. A full discussion of the circumstances leading up to these charges will be found in the article LANDS, PUBLIC. At about the same time these charges were made by Mr. Glavis, a sweeping attack on the Forestry Service and the whole system of conservation as mapped out in the Roosevelt administration, was made by Ormsby McHarg, Assistant Secretary of Commerce and Labor. He declared that the Forestry Service had at its disposal information showing that the conservation policy of the government is absolutely needless and cannot be needed for several years. These charges were answered by Acting Forester Overton W. Price. Shortly after this attack Mr. McHarg resigned.

Mr. Glavis went for advice as to the proper procedure for preventing the patenting of the coal lands to Mr. Pinchot, who advised him to place his charges against Secretary Ballinger

connection with the alleged complaints. He pointed out that Mr. Ballinger's legal services on the Cunningham claims were very slight, and that at the time of their performance he was not connected with the government. He also pointed out that Secretary Ballinger had studiously refrained from having anything to do with the Cunningham claims, leaving that entirely to his subordinates. It appeared later that the President had placed the matter before Attorney-General Wickersham, who had furnished him with an opinion entirely exonerating Secretary Ballinger from blame. The President directed the dismissal of Mr. Glavis from the service for "filing a disingenuous statement unjustly impeaching the official integrity of his superior officer."

In the same letter President Taft went into the charges brought against Secretary Ballinger in relation to the alleged reversal of the policy inaugurated by President Roosevelt and carried out by Secretary Garfield, and the withdrawal from entry for private ownership lands in the public domain which contained valuable water power sites. As noted above, Mr. Ballinger had restored a large part of these lands to public entry. He later, however, modified his procedure, and again withdrew some of those which had been thrown open. This withdrawal, together with a controversy with the Reclamation Service as to contracts made with homesteaders, and the refusal of Secretary Ballinger to permit the Forestry Bureau to take charge of the forests on Indian reservations, were asserted to be proofs of the former's lack of sympathy with the policy of conservation. President Taft stated in his letter to Mr. Ballinger that he was conversant with every detail of the latter's course in these particulars, and that he approved it. He stated further that when Mr. Garfield withdrew this land from entry he withdrew parts of townships, with no relation to water powers, and that the land retained by Mr. Ballinger was so accurately plotted by the Geological Survey that it preserved the water powers as completely as the larger area withdrawn by Mr. Garfield. He stated also that the Attorney-General had sustained Mr. Ballinger's interpretation of the reclamation contracts, and that the Comptroller had ruled that the Forestry Bureau cannot, without additional legislation by Congress, which he recommended, administer the forests on Indian reservations. The President stated that no trust or monopoly or syndicate had obtained any water powers during Secretary Ballinger's incumbency, and expressed the belief that the present policy of the Interior Department would promote sound and sure development and conserve the resources in the reclamation of arid lands and in forestry.

President Taft disavowed any reflection on the administration of any other department of the government, and he sent to Mr. Pinchot a copy of his letter to Secretary Ballinger, with the statement that none of the facts contained therein was held to be criticisms of his administration of the Forestry Bureau.

The controversy did not end with this action

used in the preparation of articles published in these magazines was furnished by officials of the Forestry Bureau who were opposed to Secretary Ballinger. The latter replied to these charges in an interview on November 7, defending his action in the matter of the withdrawal of the power sites. On November 19 he denied other charges made against him, among them the assertion that he had been interested in the Alaskan Petroleum and Coal Company. This he denounced as a fabrication. At the same time he made a general denial of other charges made against him in magazines and elsewhere.

The agitation did not cease, and on December 21 the matter was taken up in the Senate, when Senator Flint, of California, submitted a resolution calling for all the papers relating to the Alaska coal and charges which were based on the charges of L. R. Glavis against Secretary Ballinger. This resolution was passed and a statement was immediately made by Senator Jones, of Washington, that this was in accordance with the personal wishes of the Secretary of the Interior. He read a letter from Secretary Ballinger asking for a thorough investigation of the charges made against him and his subordinates. Mr. Ballinger declared that he courted the widest and fullest inquiry by Congress into these matters, and asked for a wider investigation than the resolution provided for. It was decided on December 28 that the investigation be carried on by a joint committee of the Senate and House, to consist of six members of each house. This committee has the power to inquire into the propriety of Secretary Ballinger's conduct while Commissioner of the General Land Office, as well as the head of the Interior Department. No action was taken as to the appointment of the committee before the Christmas holidays.

THE PRESIDENT'S TOUR. In September President Taft started on a long tour of the country, which continued during the following month and included the eastern, western and southern portions of the country. The purposes of the tour were threefold. The President wished first to meet the people of the country and find out what they wished from his administration, and second, to interpret to them the recent events and occurrences of Federal legislation, and third, to shape public opinion by suggesting possible future legislation, and to raise for it popular support. The speeches which he made during the tour reflected these purposes. In Boston, where the journey was begun, his address was given up to monetary and currency reform. In Minnesota, which is one of the States in which the issue for radical tariff reform is especially urgent, he defended the tariff law as being, in spite of manifest defects, the best Protectionist measure ever passed by a Protectionist Congress. This address at Winona was received with less enthusiasm by the President's hearers than any other which he delivered in the course of his long journey. In Milwaukee the President urged the establishment of postal savings banks, and in Iowa he recommended the amendment of the Sherman

anti-trust law and the Hepburn law regulating interstate commerce. In Colorado the President spoke on reclamation as a branch of the conservation service, and promised that the work of the government should not be lessened. One of the most important events of his visit to Colorado was the opening of the Gunnison irrigation tunnel (see COLORADO). On September 28 President Taft spoke at Spokane on the subject of the policy of the administration in respect to the conservation of national resources. He took the opportunity of asserting that Secretary Ballinger was in accord with him as to the necessity of promoting in every legitimate way the conservation of national resources.

One of the most important and picturesque features of the President's journey was a trip down the Mississippi River from St. Louis to New Orleans. This was taken with the object of determining the proper methods for carrying out the proposed improvements in the Mississippi River. At a notable speech in St. Louis in the presence of about 175 Congressmen, he made these views public. He said that every comprehensive project of the sort should be taken up on its merits, and it should be determined by all possible means whether the country in which that project is to be carried out is so far developed as to justify the expenditure of a large sum in carrying out the project, and whether the project will be useful when done. He declared that when this preliminary proof should be furnished, he was willing to carry out the work as rapidly as possible. The proper method, in his opinion, is by issuing national bonds to pay the expenses. In relation to the Mississippi project he spoke specifically as follows: "Now there is a proposition that we pay \$500,000,000 or \$1,000,000,000 in bonds for the waterway, and then that they apportion a part to the Mississippi and a part to the Atlantic, a part to the Missouri, and a part to the Ohio. I am opposed to it because it not only smells of the pork barrel, but it will be the pork barrel itself. Let every project stand on its bottom."

In a later speech the President expressed his personal opinion that the deepening of the Mississippi waterway should follow, rather than precede, the completion of the work planned for the Ohio River. In this address he again made it plain that the important part is not to take the several parts of the problem one by one and work spasmodically at it, but to determine in advance whether the entire project as a whole is possible and likely to be profitable to the interests of the nation at large, and then if it seems desirable that it should be, to plan and finance it as a whole, keeping it free from all political influences. See WATERWAYS, INTERNAL.

An interesting event of the President's tour was his meeting, on October 16, with President Diaz at El Paso, Texas (see MEXICO). The tour began on September 14 and ended on November 10.

On December 8 President Taft opened the first session of the National Rivers and Harbors Congress. In an address delivered at that time he outlined still more definitely his ideas in regard to improvement of waterways (see WATERWAYS, INTERNAL). For a discussion of

the foreign relations of the government during the first year of President Taft's administration, see *Foreign Relations*, and for the work of the several departments, see sections on these departments under the general head UNITED STATES. See also other articles throughout the work relating to the politics and government of the United States.

TARIFF. The discussion of the tariff in the paragraphs below, will be limited to the passage of the bill through Congress, and its signing by President Taft. The completed measure is discussed more fully in the article **TARIFF**.

The revision of the tariff was foreshadowed by the plank calling for such action in the Republican platform of the campaign which resulted in the election of President Taft. After the election, hearings were held by the House Committee on Ways and Means, and much evidence was presented by manufacturers and others directly interested. Investigations were also carried on by the Finance Committee of the Senate, of which the chairman was Senator Aldrich. Following these hearings preparations on the bill were begun in the House of Representatives and in the Senate, and on the receipt of the message of President Taft on March 16, following the opening session of the extra session of Congress, Mr. Payne introduced the tariff bill which was the result of the work of the Committee during the previous summer and autumn.

Debates on the measure began immediately after its introduction. The discussion of the first week was devoted chiefly to arguments by the advocates of high protection, against the action of the framers of the bill in placing hides, iron ore and other raw material on the free list, and in reducing the duties on iron and steel. Still stronger opposition was shown against imposing a tariff on certain items formerly admitted free, as tea and cocoa, and against raising the duty on hosiery and gloves. The debates in the House, although they were vigorous in some respects were, on the whole, perfunctory. The most striking amendment was the placing of petroleum on the free list. In the measure as originally presented, petroleum crude or refined, was placed on the free list, but with the proviso that if crude petroleum or its products produced in any country imposing a duty on these commodities when exported from the United States were imported into the United States, a duty equal to that imposed by such country should be collected. This was called a countervailing duty. It was alleged in the House that this provision gave the Standard Oil Company almost absolute protection from foreign competition. Mr. Payne was forced to offer an amendment striking out the countervailing duty, and replacing it with an ad valorem duty of 25 per cent. This action, although it was strongly favored by Speaker Cannon, was defeated by a combination of Republicans and Democrats. This combination then obtained the passage of an amendment fixing the petroleum duty at a nominal figure of 1 per cent. Mr. Payne thereupon placed oil on the free list. Another important amendment to the bill was the elimination of the duty on tea, and the countervailing coffee duty. The countervailing duty on lumber was also eliminated. An attempt to place lumber on the free list was de-

Dingley schedule on hides was unsuccessful, and they were added to the free list. Several changes, chiefly downward, were made in the steel schedule. The bill was adopted by the House April 9, by a vote of 217 to 161. It was at once sent to the Senate and referred to the Committee on Finance. This committee at once reported a substitute bill which had been prepared by Senator Aldrich, chairman. This bill was remarkable in that it did not mention many of the most important and debated items of the House bill, including hides, oil, coal and wood pulp. Senator Aldrich explained that these items were purposely omitted in order that they might be discussed on the floor of the Senate. The bill contained no administrative features such as the maximum and minimum systems, which were added later. The most striking decreases of the Senate bill, as compared with the House bill, were on cocoa, hosiery and gloves, and the most striking increases were on imported beers and wines. The Senate bill also imposed a tax of 35 per cent. ad valorem on pleasure yachts hereafter built abroad for American account, the duty to be collected when the yacht first touches an American port. An important provision was in relation to works of art, which provides that paintings and sculpture at least twenty years old, shall be admitted free, and it further provides that all works of art, including tapestries, porcelains and antiquities 100 years old or more, shall be admitted free. Senator Aldrich in presenting the bill, claimed that the rates contained therein were lower than in the bill passed by the House. "the actual number of reductions being about three times the number of increases." He claimed that the great mass of the rates reported were below those of the existing law.

The course of the bill through the Senate differed from that of previous tariff bills, in that it was strongly opposed by a group of Republican Senators. These were Senator Beveridge of Indiana, Senator Bristow of Kansas, Senator Clapp of Minnesota, Senators Cummins and Dolliver of Iowa, Senator La Follette of Wisconsin, and Senator Nelson of Minnesota. On April 21 the reading of the bill by paragraphs was begun, and on the following day Senator Dolliver and Senator Nelson attacked the measure on the ground that it was not downward revision. Senator Aldrich replying to this criticism admitted that the Republican party committed itself to the revision of the tariff, but asserted that such a promise did not involve a revision of the tariff downward. He asserted that the bill introduced by him would give a revenue of \$345,000,000 from the customs annually. He further claimed that because of his new definitions of dutiable values, new methods of ascertaining the same, and more effective machinery for collecting customs, there would be a very pronounced reduction of expenditures. He promised a surplus of \$30,000,000 in 1911.

Considerable friction was caused by the attempts of the opponents of the bill to introduce into the debates reports collected from the State Department relating to economic conditions in

Senator Aldrich protested against the use of these data, and denounced the communication as an impertinence because of its relation to the pending tariff bill. He afterwards qualified his statement and eulogized the German Emperor, government and people. All the more important schedules were passed only after a strenuous opposition on the part of the insurgent Senators. These attacks were particularly bitter on the textile schedules, where the opposition was led by Senator Dolliver. Senator Aldrich, in spite of this opposition, had his forces so well in hand that he was able to secure a sufficient number of votes on practically every schedule. Amendments relating to iron, lumber and other important items, introduced by Senator Cummins, Senator Beveridge, and other insurgent Senators, were defeated.

The debate on the duties on lemons proved to be one of the most interesting of the session. Under the McKinley act, the duty on lemons was 25 cents per box, under the Wilson bill, 30, under the Dingley act, 80, under the Payne bill, \$1.00, and under the Senate bill, \$1.20. This duty was strongly opposed by Senator Root, who spoke in behalf of consumers, while the growers' interests were defended by Senator Flint, of California. He declared that the average profit for the growers since the Dingley Tariff law went into effect, was about 4 per cent. Senator Root claimed that taking the lowest figures for foreign lemons, the California growers were able to meet the foreign growers at the Atlantic coast with an advantage of 10 cents per box, and that notwithstanding this the lemon growers of California asked for an increase of 50 per cent. in duty. He declared that he could see no justification whatever in giving these growers an additional rate which would enable them to put their price still higher over and above the present large profits, and at the same time cut off the foreign importation so as to produce a scarcity in this country, and in the United States to put up the price still higher. In spite of Senator Root's position, the amendment was defeated by a vote of 44 to 28.

Two bills providing for an income tax in connection with the tariff measure were introduced, one by Senator Bailey, of Texas, and the other by Senator Cummins, of Iowa. The former represented the Democratic view on the subject, and the latter the Republican. The two bills were different in several important particulars, but the two Senators compromised their differences and agreed upon one bill. As the result of this combination they were in a position to force an agreement upon the date for a vote upon their proposition and it appeared that they had a very fair chance to secure the adoption of their measure as an amendment to the Senate bill. Senator Aldrich was opposed to the income tax at this time, and it was well known that President Taft also opposed it on grounds of constitutional interpretation, if not on those of political expediency. Before a vote could be forced on the measure introduced by Senators Bailey and Cummins, President Taft, on June 17, sent to Congress a special message in which he called attention to the fact that he had recommended in his inaugural address

and in his message to Congress the adoption of a tax on inheritances as a means of meeting the probable deficiency of income. He pointed out that the House had already adopted this idea, and that the Senate was considering an income tax and was apparently not in favor of a tax on inheritances. He declared that the form of income tax proposed in the Senate was almost the same as that which the Supreme Court of the United States had declared unconstitutional after its adoption in connection with the Wilson tariff bill. He therefore recommended that Congress, before resorting to the device of a Federal income tax, should insure the removal of all constitutional doubt, by taking steps to amend the constitution. This should be done, he declared, by the framing and adoption of a suitable amendment by Congress, and its submission to the States in order to secure the needed approval of at least three-fourths of the 48 States of the Union. He proposed that in the meantime, Congress should levy a tax of 2 per cent. upon the earnings of corporations.

On June 28 the general consideration of the schedules of the bill was completed in the Senate, and a resolution providing for the income tax amendment was introduced. On July 2 the Senate adopted the corporation tax amendment by a vote of 60 to 11. Of those voting against it, three were Democrats and eight Republicans. Nearly all the Republicans voting against the bill belonged to the so-called insurgents or radical wing, who preferred an income tax, and did not wish to accept the proposal as a substitute for their more sweeping plan of levying a tax upon all large incomes. In the bill as accepted, the corporation tax was reduced from 2 per cent. to 1 per cent. upon the net incomes of all business corporations. An amendment offered by Senator Clapp, of Minnesota, taxing the net incomes of so-called holding companies, was adopted. On July 5 the Senate, by unanimous vote, adopted the resolution providing for the submission of an income tax constitutional amendment to the State Legislatures. On this date consideration of the administrative features of the bill was completed.

During the progress of the bill through Congress, there was much discussion in the press and elsewhere, as to the attitude of President Taft toward the completed measure. While the bill was in process of passing through Congress, the President did not publicly express any opinion or attempt in any way to influence the measures of the enactment. When committees of the House and Senate met in conference to agree upon a perfected bill, President Taft's attitude became more positive. A number of the members of Congress, Senators and Representatives, called upon him in the middle of July to argue against placing on the free list certain articles as lumber, iron ore, hides, gold and other raw materials. It was well known that the President advocated placing all these articles on the free list. The House had for the most part removed the tariff from such articles, but in the Senate they had, to a considerable extent, been restored. The President made public a statement regarding this interview, and made clear his opinion as favoring, in a general way, an approximation toward the free raw materials. He did not, however, commit himself to free raw materials as a prin-

ciple, but took the view that there were practical grounds for low rates, if any, on iron ore, hides, coal, oil and lumber. Mr. Payne and the House conferees agreed with the President, and Senator Aldrich professed his readiness to yield if the President could find the votes to adopt the conference report providing for practically free raw materials. The President undertook to find these votes and did so.

The Senate passed the tariff bill on July 8, by a vote of 45 to 34, and a conference committee consisting of members of the House and Senate, was at once appointed to agree upon amendments. The members of the Senate Committee were Senators Aldrich, Burrows, Penrose, Hale, and Cullom, Republicans, and Money, Daniel, and Bailey, Democrats. On the part of the House, the conferees were Representatives Payne, Dalzell, McCall, Boutell, Calderhead, and Fordney, Republicans, and Clark, Underwood, and Griggs, Democrats. Considerable comment was occasioned by the action of Speaker Cannon in passing over Representative Hale, of Connecticut, and Representative Needham, of California, who would, in the ordinary course, have been appointed members of the committee. These men were well known to be advocates of lower tariff rates, while Representatives Calderhead and Fordney, who were below them in seniority, were known to be advocates of higher duties. On July 31 the House adopted the conference report of the tariff bill by a vote of 195 to 183. Twenty Republicans voted in the negative, and two Democrats in the affirmative, and on August 5 the Senate adopted the conference report by a vote of 47 to 31, seven Republican Senators, Beveridge, Bristow, Clapp, Cummins, Dolliver, La Follette and Nelson, voting against the report, and one Democrat, McEnery being paired for the bill.

Among the provisions of the tariff bill was one for the appointment of a tariff commission, and in accordance with this provision, President Taft appointed in September as members of this commission, Henry C. Emery, professor of political economy at Yale University; James B. Reynolds, assistant secretary of the treasury for four years, and Alvin H. Sanders, editor of the *Breeders' Gazette*, who is an authority upon agricultural matters. The general scope of the work of this commission will be found discussed in the article **TARIFF**. Provision was also made for the establishment of a customs court to pass upon measures relating to the enforcement of the tariff law. This is also discussed in the same article. For an account of the provisions of the Philippine tariff bill which was passed in connection with the general tariff bill, see **PHILIPPINES**.

TREATIES. Although the number of arbitration treaties between the United States and foreign countries was less than in 1908, when more than a dozen such treaties were agreed upon, many treaties relating to the arbitration of questions at issue were effected. These included arbitration treaties with Mexico, Peru, Honduras, Portugal and Austria-Hungary (see **ARBITRATION, INTERNATIONAL**). Extradition treaties were signed with Santo Domingo.

Before Mr. Root relinquished the office of Secretary of State (see *Cabinet*), he concluded several important negotiations pending between the United States and foreign countries. Among these were the Colombian-Panaman and

in ten annual installments of \$250,000; in partial settlement of Colombia's foreign debt, contracted while Panama was a part of Colombia. The treaty relating to the recognition of Panama was passed by the Colombian Assembly, but that body on April 8 refused to ratify the other provisions, and the matter was left in abeyance. See COLOMBIA.

A number of vexing questions had been pending during 1908 between the United States and Great Britain. The first of these related to the fisheries dispute with Newfoundland. The Treaty of 1818 provided that Americans shall be guaranteed the same rights of fishing in Newfoundland waters as are possessed by British citizens. The contention of the United States government has been that the British subjects possessed unrestricted fishing rights. The British government argued that the rights of American fishermen were subject to change at the will of the Newfoundland government expressed in the enactment of local regulations. Such regulations have been made, and each of them has been regarded by American fishermen as a curtailment of the original unlimited privilege to fish. The attempted enforcement of these regulations resulted in a great accumulation of claims from aggrieved fishermen. Secretary Root and Ambassador Bryce, in February, signed treaties providing first, for the submission to the Hague Tribunal of the arbitration treaty of 1818 for interpretation; second, for the submission to a joint high commission consisting of six members, three from each country, of all questions which shall arise between Canada and the United States. A third treaty settles all waterways controversies, among them being the question of the diversion of water for power purposes at Niagara Falls, the navigation of the St. John River between Maine and New Brunswick, the reciprocal use of the canals connecting various parts of the boundary waters, the use of water for reclamation purposes along the border and near the Milk and St. Mary rivers, and the principles of navigation of the Great Lakes. These treaties are the first to be arbitrated in accordance with the terms of the general arbitration treaty with Great Britain, concluded in 1908. The treaty relating to the Newfoundland fisheries had not the full consent of the Newfoundland Premier, but it was signed prior to his approval by Mr. Bryce, the British Ambassador, in order to enable Mr. Root to explain the scope of the treaty to the Senate Foreign Relations Committee before he relinquished the office of Secretary of State. The treaty providing for the regulating of the boundary line between the United States and Canada was ratified by the Senate on May 4. The agreement in regard to the Newfoundland fishery dispute was ratified by the Senate on February 18.

As a result of the enactment of the new tariff law, the commercial agreements between the United States and certain foreign countries were terminated. These countries were Great Britain, Germany, France, Italy, Spain, Portugal, and the Netherlands. There were understandings also with Switzerland and Bulgaria. On the enactment of the new law, the State Department gave formal notification to these

were carried on during the latter part of the year with France, Germany, and several other countries, but no definite arrangements had been made.

On May 6 the Senate ratified an important agreement between the United States and Russia, providing for the regulation of corporations or stock companies and other commercial associations. A patent convention with Germany was also made. See *Patents*.

FOREIGN RELATIONS. The relations of the United States with the great Powers in 1909 were uniformly friendly. The only serious difficulties with other countries were those which arose from conditions among its neighbors in Central and South America. The year saw the final settlement of the long pending disputes with VENEZUELA, which arose during the administration of President Castro, and continued until his deposition from office in 1908. Certain claims were made by American corporations and individuals of unfair treatment on the part of the Venezuelan government. These claims numbered five and were as follows: That of an American citizen, A. F. Jaurett, who was expelled from Venezuela in 1904; that of the Orinoco Corporation, which claimed large concessions covering iron mines, asphalt privileges and hard-wood concessions; that of the Orinoco Steamship Company, which claimed exclusive rights of navigation on branches of the Orinoco River; that of the New York and Bermudez Asphalt Company, which claimed the right to take asphalt from La Felicidad Lake; and that of the United States and Venezuelan Company, which declared that it had been deprived of the right to mine asphalt and build a railway. On the accession of President Gomez, in 1908, William I. Buchanan was sent as special commissioner, representing the United States, to arrange a plan of settlement for these claims, and on February 13 a complete agreement was reached, and the protocol embodying the terms of this agreement was signed and ratified by the Venezuelan Congress. Two of the cases, those of Jaurett and the New York and Bermudez Company, were settled outright by Mr. Buchanan, and it was decided that the three others should be submitted to the Hague Tribunal for arbitration. These were the claims of the Orinoco Corporation, the United States and Venezuelan Company, and the Orinoco Steamship Company. Provision was made, however, that Venezuela might reach an amicable settlement within a period of five months with either the Orinoco Corporation, or the United States, or the Venezuelan Company. Such arrangements were made, and on August 24 a protocol was signed by which the government of Venezuela agreed to pay \$475,000 to the United States on behalf of the United States and Venezuela Company. One-eighth of the amount was paid immediately, and the remainder was to extend over seven annual payments. On September 10 an additional agreement was made by which the claim of the Orinoco Corporation against the Venezuelan government was settled by the payment of the latter to the company of \$385,000 in eight annual installments. This left but one of the five claims unsettled. This

was that of the Orinoco Steamship Company, which was sent to the Hague Tribunal for settlement. The United States government chose Gonzalo de Quesada, former Cuban Minister to the United States, and a member of the Permanent Court at The Hague, as an arbitrator, while Venezuela named Dr. Roque Saenz Pena, former Minister of Foreign Affairs of Argentina. These arbitrators will meet at The Hague in January, 1910, and select the third member of the tribunal.

The relations of the United States government with the government of NICARAGUA were vexing during the year, as a result of the political conditions in the latter country. A series of offenses were perpetrated against American representatives, American citizens, and American interests generally in the early part of the year, and in March the United States withdrew its diplomatic representative, and turned over the archives to the American Consul. On March 17, Secretary Knox sent to the Nicaraguan minister at Washington a severe note, expressing the desire of the government of the United States for the arbitration of the long-standing Emery claim. This claim related to amounts alleged to be due as the result of the mahogany concession granted in 1898. The concession was to run for a term of years, and the concessionaires were to pay to the Nicaraguan government certain sums of money, and also a tax on logs taken from the country, while the company was to enjoy the privilege of bringing in all necessary working materials free of duty. The terms of the concession provided that any disputes should be settled by arbitration, by a tribunal of three members, one chosen by each side and the third by those two arbitrators. In 1903 the company was accused by the Nicaraguan government of smuggling, and upon the initiative of the government an arbitration tribunal was appointed in accordance with the terms of concession. This tribunal decided that inasmuch as the company had paid taxes for three years in advance, the concession could not be annulled. In July, 1906, President Zelaya notified the concessionaires that he regarded the concession as annulled, and directed his legal department to institute suits for money due the government. The litigation between the company and the government drifted along through President Roosevelt's administration without any definite settlement. When Mr. Knox became Secretary of State, the matter was again taken up.

The reply of the Nicaraguan government to the note of Secretary Knox, referred to above, was considered unsatisfactory by the State Department. On April 5, however, it was announced that the Nicaraguan government had decided to settle the Emery case along the lines suggested by the Department of State, and President Zelaya appointed Pedro Gonzales as a special envoy to carry on negotiations. On May 25 a protocol which provided for the arbitration of the claims was signed by Secretary Knox and the Nicaraguan representative. This protocol provides for a tribunal of five members, two representing the United States, two Nicaragua, and a fifth to be chosen by the four representatives. If the four members representing the United States and Nicaragua are unable to agree on a fifth member, the King of England will name the arbitrator.

The outbreak of the revolution against Presi-

dent Zelaya, headed by General Estrada (see NICARAGUA), resulted in still more friction between the United States and Nicaragua. Two American citizens who took part in the revolution as officers in the army of General Estrada, were captured by President Zelaya's forces, and at his command were put to death, it was alleged, without proper trial. In November, Secretary Knox wrote a sharp letter to President Zelaya denouncing the execution of the two Americans, Cannon and Groce, and declaring that an investigation would be made as to the responsibility for their execution. In a message, which was said to have been sent by Zelaya to a New York newspaper, published on November 26, he attempted to explain the execution of Cannon and Groce, and declared that they had been captured in setting mines at the mouth of the San Juan River, with a view to blowing up the steamers conveying government troops. He declared, also, that they had voluntarily confessed their guilt. The resignation of President Zelaya a short time after this put an end to whatever measures the United States government had anticipated taking against him on account of the execution of these two men.

On August 23, PANAMA paid to the United States \$14,000 as money reparation in cases involving the maltreatment of American naval officers and seamen at the hands of the police of the republic on four different occasions since June 1, 1906. Of this amount \$5000 is an indemnity in what is known as the "Cruiser *Columbia* Incident," when several officers in uniform were arrested, locked up and roughly handled in Colon on June 1, 1906. The other cases related to the ill-treatment of American citizens. On July 22, the American Vice-Consul at Cartagena, COLOMBIA, was attacked and injured. The motives of the assault were said to be entirely personal. The government of Colombia expressed its deep regret at the occurrence, and promised that the matter should be investigated and the culprits punished according to Colombian law. The Alsop claim, which had been pending for many years between the United States and CHILE, was settled by agreement to arbitrate. This claim originated in the loan of money, in 1874, by Alsop & Company, an American concern, to the Bolivian government in return for the right to work guano deposits. The loan amounted to more than \$1,000,000 in gold. Before the arrangements were completed, the control of the custom house at Arica passed from the Bolivian government to the Chilean government. The receipts of the custom house were diverted, and changes were made in the mining laws of the country, which practically nullified the agreement to repay the loan. Since that time negotiations have been carried on at different periods to bring about an adjustment. Both governments agreed to a protocol to submit the controversy for definite settlement to King Edward VII.

The relations with CUBA during the year were without serious incidents. On January 28 the Cuban government resumed control of the island when General Gomez took the oath of office as President of the republic. Shortly after this, the last of the American troops left for the United States. (See CUBA.) In June Secretary Knox called the attention of the Cuban government to several matters of public policy which, according to his views, were not being

would be settled. In July a contract was made with the Cuban government for gun manufactures in France and Germany was broken on account of the protest made by the United States government against the purchase of these arms abroad. It is believed that the contracts were broken in order to show the desire of the Cuban government to meet with the desires of the government of the United States.

The meeting of President Taft with President Diaz, of MEXICO, at El Paso, Texas, and Juarez, Mexico, in the course of the former's tour (see *Administration*), was an interesting event, as being the first time in the history of the nation in which the President has personally greeted the chief executive of any other government on foreign soil. The treaties relating to the settlement of the fisheries dispute with NEWFOUNDLAND, and other matters pending between the United States and GREAT BRITAIN, and the United States and CANADA, are noted in the paragraph *Treaties* above. The personnel of the Court of Arbitration which will finally adjust the fisheries dispute between the United States and Newfoundland are as follows: Dr. Heinrich Lammasch, of Austria, who will act as president and cast the deciding vote; Dr. Luis M. Drago, of Argentina; Dr. A. F. de Savorin Lohmann, of Austria; Hon. George Gray, of Delaware, Judge of the United States Circuit Court; and Sir Charles Fitzpatrick, Justice of the Supreme Court of Canada.

As is noted in the section on *Tariff*, negotiations for commercial agreements were carried on during the year between the United States government and FRANCE, GERMANY, and several other countries in Europe.

In February the United States government refused to return to RUSSIA for trial, the refugee, Christian Rudowitz, who was charged with complicity in murder, arson and robbery. The evidence presented by the Russian government against Rudowitz was declared weak and conflicting, and extradition was resisted on the grounds that the acts with which he was charged were political offenses. His case was similar to that of Jan Pouren, whose extradition by Russia was refused in 1908. The attempt of Russia to gain control of the administration of the municipalities in Manchuria called forth a protest from Secretary Root, in 1908. As a result of this, the matter was left in abeyance, but in May, 1909, Russia announced the terms of an agreement by which she would gain indirect control. Secretary Knox protested against any infringement of China's integrity, or the principles of equal opportunity. In April, in response to requests from various parts of the United States asking that the government afford protection to the Americans in TURKEY, it was decided to send the armed cruisers *Montana* and *North Dakota* to Alexandretta, Turkey. For an account of the aid rendered the sufferers in the earthquake in ITALY by the United States government, see ITALY.

In spite of the attempts made by the California Legislature and other Western Legislatures to pass legislation unfriendly to JAPAN (see CALIFORNIA), the relations between the

chants, educators, and members of Parliament, from the most important Japanese cities. Their object was a tour of the country, and their mission, it was formally announced, was to strengthen the bonds of friendship and commerce between the two countries. They were everywhere received with the greatest consideration. The second incident was the courteous and friendly message from the Emperor of Japan congratulating the City of New York on the anniversary of the discovery of the Hudson River, and offering to the city as a memorial present from Japan 300 Japanese cherry trees to be planted along Riverside Drive and the Hudson River, by Japanese gardeners, to be sent to the United States for this purpose. On January 15 the Minister to CHINA made representations to the Chinese Regent regarding the dismissal of Yuan Shih Kai, and he was assured that the dismissal of this official did not indicate a change in the government's policy (see CHINA). A Chinese loan of \$27,500,000 for the building of the Hankow-Szechuan Railroad was accorded originally to foreign bankers without any consultation with financiers in the United States. Following protests by the American bankers, with the support of the government, arrangements were made by the Chinese government, with the consent of the foreign bankers, that the United States should share in this loan.

In January three commissioners were sent to Washington from LIBERIA to ask for assistance in administering the affairs of its government. The President called upon Congress for an appropriation of \$20,000 to pay the expenses of such a commission, and this sum was granted. The commission was in Liberia during the year. See LIBERIA.

UNITED STATES MILITARY ACADEMY. A government institution at West Point, N. Y., founded in 1802, for the instruction of military officers. By law, 533 cadets were authorized to attend the Academy. The faculty included in 1909, 111 professors and instructors. In the library there were 77,000 books, manuscripts, maps, etc. During 1909 several important changes were made in the faculty. Colonel Edgar S. Dudley, Judge Advocate, U. S. A., professor of law, was retired as brigadier-general on June 14, by operation of law; Lieutenant-Colonel Walter A. Bethel was assigned to duty as professor of law on August 22; Lieutenant-Colonel Robert L. Howze, commandant of cadets and instructor in tactics, was relieved on February 1, 1909, and Colonel Frederick W. Sibley was assigned to succeed him. The course of instruction at the Academy is four years, and is largely mathematical and professional. The discipline is strict and the enforcement of penalties for offenses is inflexible rather than severe. About one-fourth of those appointed failed to pass the examination, and but little over half the remainder are finally graduated. In 1909, Constitution Island, in the Hudson River, was presented to the government for the use of the Military Academy, by Mrs. Russell Sage and Miss Anne Warner. Several cadets were dismissed during the year for hazing. The law, as it stands at present, makes

absolute dismissal the only penalty for this offense. Measures were introduced into the Sixty-first Congress, providing for a modification of the law, by making a distinction between the various grades of hazing, some of which should be punished by dismissal, and others by less severe measures.

UNITED STATES NATIONAL MUSEUM. An institution which originated in the Act of Congress of 1846, founding the Smithsonian Institution. It is the official custodian of the national collection, and its expenses are annually provided for through appropriations made by Congress. The Museum is especially rich in collections illustrating natural history, geology, paleontology, archaeology and ethnology of America. Many valuable accessions were made during the year from the expedition under the command of Theodore Roosevelt in British East Africa.

UNITED STATES NAVAL ACADEMY. A government institution at Annapolis, Md., founded in 1845 for the education of officers of the United States navy. The attendance in 1909-10 was 360, and the instructors numbered 96, with 11 heads of departments. Candidates and alternates to fill vacancies in the Naval Academy are nominated upon the recommendation of the Senator, Representative, or delegate in Congress, such recommendation being made by the fourth day of March, on the year following that in which notice is given by the Secretary of the Navy of a vacancy existing in the Naval Academy. If recommendation is not made by this date the Secretary of the Navy is authorized to fill the vacancy by the appointment of an actual resident of the State, Congressional District, or Territory in which the vacancy exists. During 1909 the construction of the new buildings of the Academy was completed at a cost of over \$10,000,000. Several unfortunate accidents occurred during the football season, and as a result, the schedule of the year was abandoned before the season closed. The superintendent in 1909 was Capt. John M. Bowyer and the commandant of midshipmen was Capt. C. A. Gove.

UNIVERSALISTS. A religious denomination, first established in the United States at Gloucester, Mass., in 1799. Its distinctive tenet is the final salvation of all men. The denomination numbered in 1909, 53,954 communicants, 904 parishes, and 689 ministers. The Sunday schools had a membership of about 50,000. The parish property was valued at \$10,958,008, and the parish expenses and contributions during the year amounted to \$1,202,624. The permanent funds of the general convention amounted to \$388,590. Foreign missions are carried on in Japan and Cuba, and domestic missions are sustained in fifteen States. The educational institutions under the auspices of the denomination include Tufts College at Medford, Mass.; St. Lawrence University at Canton, N. Y.; Buchtel College at Akron, Ohio; and Lombard College at Galesburg, Ill. At the final session of the General Convention at Detroit in October, 1909, commissions were appointed on social service, on the duty of the church to our foreign population and on the increase of the ministry. Delegates were also appointed to the International Council of Religious Liberals in Berlin in August, 1910. The next session of the General Convention will be held in Springfield, Mass., in October, 1911.

UNIVERSITIES AND COLLEGES. The attendance at American Universities continued to increase in 1909, seven gaining more than 300 students each. Eleven gained more than 1000 each since 1902, the largest increases being at Pennsylvania, Columbia and Cornell. Ten universities now register more than 4000 students each, five more than 5000, Columbia more than 6000, a number only once before passed by Harvard with 6013 in 1903. The comparative figures are: Columbia 6132, Harvard 5553, Chicago 5437, Michigan 5259, Cornell 5028, Pennsylvania 4857, Illinois 4502, Minnesota 4351, Wisconsin 4245, and California 4084. Yale has 3276, Stanford 1620, Princeton 1398, and Johns Hopkins 710. Six universities enrolled more than one thousand students in the summer session of 1909, namely: Chicago (3253, as compared with 2804 during the regular year), Columbia (1908), Harvard (1377), Michigan (1225), Indiana (1139), and Wisconsin (1133). Omitting summer session enrollment, the comparative figures for 1909 are: Columbia 4650, Michigan 4631, Pennsylvania 4608, Harvard 4518, Cornell 4514, Illinois 4173, Minnesota 4036, Wisconsin 3495, California 3454, and Chicago 3804. Eleven institutions have more than 1000 academic students, Harvard leading with 2720. Three of these eleven, all Western, have more undergraduate women than men. Cornell, Michigan and Illinois have each more than 1000 students of engineering. Throughout the schools of engineering, medicine and law, there is a slight decrease in attendance, apparently due to increased requirements for both admission and graduation. Columbia has the largest number of graduate students (991), of students in education (974), and in pharmacy (290). New York University leads in attendance in law (768) and in commerce (808); Northwestern in medicine and theology (216); Syracuse in music (758) and in art (124); Minnesota in agriculture (681), Illinois in architecture (240), Pennsylvania in dentistry (434), Minnesota in forestry (98), Ohio in veterinary medicine (202), and Missouri in journalism (65). Among the colleges Amherst (526), Bowdoin (419), Dartmouth (1197), and Haverford (157), show a slight decrease in numbers. All of the colleges for women show increase.

In geographical distribution of students in 1908-9, Eastern universities continued to be less local than Western, and the women's colleges less local than those for men. Columbia led in attendance in 14 States, Harvard in 13, Cornell in 10, and Yale in 9. Cornell led in the number of students from insular territories, California in Alaska, Cornell in Porto Rico, Pennsylvania in the Canal Zone. The number of foreign students continued to increase, Pennsylvania having 225, Columbia 166, Cornell 157, and Harvard 147—chiefly from Canada, China and Japan. In 1908-9 there were 500 Chinese students in the United States, 150 of them sent by the government. To these there were added in 1909 the first 47 who are to profit by the expenditure in American education of the remitted Boxer indemnity of \$11,000,000. The Chinese Students' Alliance of the Eastern States, had an attendance of 140 at its fifth annual conference in September. The Association of Cosmopolitan Clubs with 2000 members representing twenty universities and fifty countries, held its fourth annual convention in December.

United States and Canada. This may be considered an indication that the Rhodes scholarships have proved mutually profitable. The Bureau of American Republics planned an exchange of professors and students among the various American republics. A Cornell symposium indicated that many administrators advocate an interchange of professors among American universities, a feature already in favor in various summer sessions.

The third annual report of the Carnegie Foundation for the Advancement of Teaching, issued in March, recorded the addition during the year of seven institutions to its previously accepted list of 55, and the addition of 78 allowances to its previous 211 grants, the whole amounting to \$303,505 annually. Mr. Carnegie has increased his foundation from ten to fifteen million dollars in order that its benefits might be extended to State universities. Wisconsin, Minnesota, Michigan and Toronto have since been admitted. A memorial from fifteen denominational colleges requesting admission was not acted upon. In addition to its usual tabulation of extensive information concerning its accepted institutions, the report presented similar information concerning tax-supported institutions, recorded the progress of higher and more flexible requirements for college entrance, and recommended State supervision for all higher institutions. In June, the Foundation removed George Washington University from its lists, on the charge of reducing its endowment below \$200,000, failing to enforce its announced standards of admission, and retiring professors merely for reasons of economy.

The General Education Board received from Mr. John D. Rockefeller, in June, a gift of \$10,000,000, his previous gifts having been \$1,000,000 in 1902, \$10,000,000 in 1905, \$32,000,000 in 1907—a total of \$53,000,000, or about one-half of Mr. Rockefeller's gifts for education. Originally devoted to secondary, rural and negro education in the Southern States, since 1905 the board has extended its work throughout the country, coöperating with religious denominations, emphasizing the importance of established educational centres, encouraging endowments, and securing local coöperation. It has now awarded some \$4,000,000, on condition that its recipients receive approximately three times that sum from other sources. Grants for the year ending in May amounted to \$1,763,375, to twenty institutions, the largest being \$250,000 each to Johns Hopkins and Bryn Mawr.

The new Education section of the American Association for the Advancement of Science, published during the year the records of its important conferences, late in December, 1908, concerning international standards in education, the United States Bureau, the adjustment of the college to American conditions, psychological aids to education, and the problems of science teaching. The Association of American Universities considered the function of the college in the university. The National Association of State Universities defined a standard American college as requiring a four years' high school course of fourteen units for entrance to a four-year, or sixty-hour curriculum, the first half of general academic work, the

professional or technical school requiring for admission the previous completion of two years of collegiate work, and a graduate school prepared to give three years of work after the bachelor's degree in at least five departments. The same association recommended that high school teachers have a bachelor's degree, college professors the degree of doctor of philosophy or its equivalent, and professors in charge of graduate work, a record of successful research and publication and demonstrated power as teachers. The National Conference Committee on Standards of Colleges and Secondary Schools defined a unit for college entrance as a year's study of at least one hundred and twenty class hours in any secondary school subject.

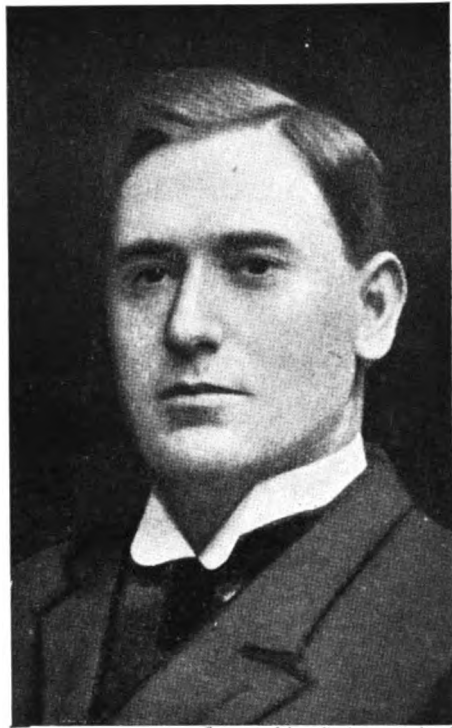
The number of degrees of doctor of philosophy conferred in 1909 was 378. The largest numbers were conferred by Columbia (59), Yale (44), Chicago and Harvard (each 38). Three-fourths of all such degrees since 1898 have been conferred by Chicago (448), Columbia (436), Harvard (418), Yale (394), Johns Hopkins (360), Pennsylvania (286), and Cornell (237). Half of the degrees for 1909 were in science, especially chemistry. Of the 596 Ph. D's from Harvard since 1873, four-fifths are teachers. Having in mind current criticism of what President Hadley has called the "ordinary Ph. D. of commerce," a symposium of the doctors from Chicago approved a higher standard of general culture for the doctorate, and suggested a new non-research degree as a preparation for teaching. In special fields of research, astronomy and geography were emphasized by current interest in polar exploration, and archæology by a gift of endowment to the Archæological Institute, supported by various universities, and by the successes of Princeton and Pennsylvania expeditions in Arabia and Egypt. The American Institute of Electrical Engineers and the chief of the Federal Bureau of Chemistry found a general opinion among men in their fields that a knowledge of the classics was indispensable.

Among the professional schools it is estimated that 14,000 students are profiting by the \$100,000,000 invested in the study of agriculture. Investigation in this field continued to be highly fruitful and instruction was spread more and more widely through short courses, instruction trains, publications, and the development of agricultural high schools. Forestry held its first conference, in Washington on December 30 and 31, and other forms of conservation began to receive attention. In commerce more attention was devoted to investigation and fuller preparation was provided for teachers of commercial subjects. The slight decline in the number of students of engineering still leaves more than 1600 with generally higher standards and new developments in the direction of conservation and sanitation. The French minister of education has arranged to send numbers of advanced students in this field to American institutions. Columbia opened, through Teachers College, the first University School of Household Arts. Journalism developed steadily, the daily paper of the school of the University of Missouri becoming self-supporting. In medicine the requirements for admission continued



Courtesy of the "Review of Reviews"

ABBOTT LAWRENCE LOWELL
Harvard University



Courtesy of the "Review of Reviews"

MARION LE ROY BURTON
Smith College



Courtesy of the "Review of Reviews"

ERNEST FOX NICHOLS
Dartmouth College



WILLIAM ARNOLD SHANKLIN
Wesleyan University

FOUR UNIVERSITY OR COLLEGE PRESIDENTS INSTALLED IN 1909

to approximate two years of college training. Medical training continued to enlarge both its scientific and clinical requirements, and the tendency increased for clinical professors to give their entire time to instruction and investigation in university hospitals, without outside practice. Among notable gifts for medical research during the year, Columbia received \$1,500,000, Johns Hopkins \$1,000,000, and Pennsylvania \$500,000 for the study, respectively, of cancer, insanity and tuberculosis. Philanthropy expanded as a field for university study. In theology the attendance began again to increase, the four largest seminaries each gaining 20 per cent. Several institutions were charged with higher criticism, infidelity and atheism. The New York Presbytery first refused and then accepted three graduates of the Union Theological Seminary whose orthodoxy was of an advanced character. Andover elected as president, the Rev. Albert Parker Fitch, a graduate of Harvard and of Union. At Princeton a petition of seventy-five students for "more intelligible" and more contemporary courses was rejected by the faculty, but accepted for consideration by the board of directors. The *Outlook*, inquiring of thirty-nine seminaries, found that eighteen had recently developed courses in the economic and sociological aspects of religion. The Music Teachers' National Association pointed out that 16 colleges now grant credit for music, both at entrance and for graduation, and 39 for graduation only, both recognitions having been gained within six years. Most credit is given for harmony, counterpoint and composition; the Association would increase the crediting of appreciation.

In May, Charles W. Eliot terminated his forty years' presidency of Harvard. In October that university inaugurated as his successor Abbott Lawrence Lowell, of a family long associated with Harvard, an athlete in college, graduating from Harvard and its Law School, then a lawyer and financier, author of standard legal texts and of *The Government of England*, and since 1900 professor of government in Harvard. His inaugural address emphasized the importance of the college, and in December the university publicly amended its scheme of free electives, by requiring a considerable amount of work in a single field, with the remainder well distributed under the direction of a committee and advisers. At the same time the faculties considered shortening the combined course for the A. B., and the M. D., from eight to six years. This sudden change of the university's most noted policies, strikingly illustrates the power of the executive in American education. In June James B. Angell concluded his thirty-eight years' presidency of the University of Michigan, during which he made that institution the exemplar for State universities. Dr. Angell refused the appointment of Chancellor of the University for that of president-*emeritus*. His successor has not yet been chosen. In June the Massachusetts Institute of Technology, inaugurated President Richard C. Maclaurin, and in October, Dartmouth inaugurated President Ernest Fox Nichols, both from professorships of physics in Columbia. The former in his inaugural emphasized the cultural value of scientific study, the latter the importance of the classics. In October, Colgate University inaugurated President Elmer Burritt Bryan, formerly General Superintendent of Education in the Philippines.

During the year, also, the Rev. Dr. William A. Shanklin was made president of Wesleyan University, the Rev. Charles A. Richmond, president of Union College and the Rev. Dr. Marion L. Burton, president of Smith College. The Regents of the University of Wisconsin were subject to political attack during the year, and the State Agricultural College of Oklahoma suffered the political reverses which overtook the University of Oklahoma in 1908. The dean of Clark College resigned, alleging encroachments by the president upon the will of the founder.

Academic discussion was prolific during 1909. The National Association of State Universities and the American Academy of Political Science, dwelt upon the dangers to academic freedom of political, denominational, plutocratic and corporate influence. Publicists who condemned universities for being unbusinesslike, or too businesslike, were reminded of the progress of many forms of extension, of the University of Cincinnati plan for giving engineering students practice in local manufactories, that a professor of political science was acting as an alderman in Chicago, and that the 1 per cent. of college graduates in our population provided 50 per cent. of our legislators. President Schurman, instancing the success of the newer, popular, practical institutions would make Cornell wholly a State university. A prominent editor held that our more academic scholarship would be confused until the nation comes to some decision concerning capitalism and socialism, government and liberty, materialism and other-worldliness. A statistician found that of 166 Harvard, Yale and Princeton seniors, whose families were in the New York Social Register, only one took high honors and only twenty others took honors. President Jordan, of Stanford, would prevent these older, social, cultural universities from becoming sanatoria or resorts for the tender rich by omitting the first two college years and emphasizing advanced work. President Wilson, of Princeton, added to his criticism of academic "country clubs," the saying that "the side shows have swallowed up the circus," and found alumni and parents indisposed to his reduction of student relaxations and his requirement of more study, with more instructors to enforce it. President Lowell, of Harvard, would adopt Princeton's plans and introduce the athletic and social principle of competition into scholarship, perhaps through the English pass and honor systems. President Hadley, of Yale, would add to this free scholarships for gifted students and would encourage investigation through research professorships. President Butler, of Columbia, reduced all of these problems to the fundamental difficulty of finding enough distinguished teachers and money to pay them properly. On the whole, he noted a new coöperation between secondary schools and colleges, and between college students and their instructors, and attributed current criticisms to enlarging ideals rather than to declining efficiency. This also was the view of several unacademic judges. Governor Hughes, of New York, found college men everywhere prominent and performing service worthy of their ideals. And Dr. Lyman Abbott, having visited forty universities and colleges during the last ten years, noted not only large intellectual, but also ethical and religious improvement.

Miami and Rutgers celebrated their one hundredth anniversaries in June, Clark its twentieth

fluence. The Association of Collegiate Alumnae published interesting records of its graduates and recommended more study of hygiene, sociology, economics, law and industry. Student government continued to be so successful that in several institutions it undertook to solve the difficult problem of extra-curriculum activities.

Under the guidance of the Society of College Directors of Physical Instruction, work in their field was conducted with an increasing relation to general hygiene. Some progress was made toward encouraging the practice of many sports by many students, instead of a few sports chiefly by experts. Twenty-six deaths from football during the season led to widespread demand for a reformation of that game, and the Intercollegiate Athletic Association, in December, instructed its rules committee to bring about modifications that will reduce the chances of injury. No university, however, followed the action of Columbia, four years ago, in prohibiting intercollegiate football, although it was pointed out that since that time Columbia had prospered as never before, while Yale, the most conspicuous champion of the game, was declining in attendance.

There was, if possible, an increase in college dramatics. Harvard presented a professional performance of Schiller's *Maid of Orleans*, with Miss Maude Adams and 1800 performers. Students at Bryn Mawr gave the *Medea* of Euripides, Smith continued her Shakespearean presentations, and Bernard began them. Yale gave Sheridan's *Critic*, Wesleyan, Goldsmith's *Good-Natured Man*, and Williams, Marlowe's *Jew of Malta*. Scarcely an institution was without some such presentation, and Yale announced plans for building a theatre. Statistics were published indicating that the 32 fraternities for men have now 1036 chapters with 199,606 undergraduate and alumni members; the 18 sororities for women, 276 chapters with 29,269 members. Together they occupy some 1100 chapter houses valued at \$8,000,000, the investment of one university reaching \$500,000. Considering these totals, it is gratifying that, during the year, only Cornell, Yale and Brown found it necessary to consider restrictive legislation. Student dissipation required faculty attention at Yale and Cornell, and hazing at Illinois, New York University, Washington and Jefferson, and Muhlenberg. Brown suspended 28 students for cribbing, Chicago 100 for deficiency. The honor system in examinations was introduced at Union. A Roman Catholic Bishop charged several universities with undermining faith and teaching immorality, but the president of the Carnegie Foundation felt that the morals of our college students were better than ever before, and that there was an earnest acceptance of religious leadership; the Religious Education Association at its sixth convention in February reported encouraging progress.

Several distinguished educators died during the year: Simon Newcomb, formerly professor of astronomy at Johns Hopkins and director of the National Observatory; Carroll D. Wright, president of Clark College and former United States Commissioner of Labor; George Park Fisher, professor of ecclesiastical history at

cerning higher education were: *The American College*, by Abraham Flexner; *The Reorganization of our Colleges*, by Clarence F. Birdseye; *America at College*, by Robert K. Risk; *The Real College*, by George Potter Benton; *The Teacher*, by George Herbert Palmer and Alice Freeman Palmer; *Lectures on Science, Philosophy and Arts*, published by Columbia University; *Hellas and Hesperia, or the Vitality of Greek Studies in America*, by Basil L. Gildersleeve; *The History of Higher Education of Women in the South*, by I. M. E. Blandin; *History of the Harvard Law School*, by Charles Warren; *Memories of Brown, The University of Virginia*, by David M. R. Culbreth; *Old Miami*, by Alfred H. Upham; *The Life and Letters of Nathaniel S. Shaler*; *The Letters, Lectures and Addresses of Charles Edward Carmon*, Carla Wenckebach, by Margarethe Müller; and *Charles W. Eliot*, by Eugene Kuehnemann.

UPPER SENEGAL-NIGER. A French inland colony in French West Africa (q. v.). It was formed in 1894 out of the territories of Senegambia and the Niger, less the former Senegal Protectorate, which was restored to Senegal. In 1907 the Dahomey districts of Fada, N'Gourma, and Say were added to the colony. Total area, 302,136 square miles; estimated population (1906), 5,058,656. The colony includes two-thirds of the course of the Niger, the valley of the Upper Senegal, and the Sahara northward to the southern territories of Algeria. The capital is Bamako, on the Niger. Imports and exports are included with those of Senegal, through whose ports they pass. A railway connects Kayes (in Senegal) with Koulikoro (347 miles), whence steamboats proceed up the Niger to Timbuktu. The colony has good systems of roads and telegraphs. A telegraph line is under construction from Timbuktu to Algeria. The colony is administered by a lieutenant-governor, who also controls the Military Territory of the Niger and who is under the Governor-General of French West Africa. Civil administration now prevails.

URUGUAY, officially styled REPUBLICA ORIENTAL DEL URUGUAY. The smallest republic of South America, on the Atlantic coast between Brazil and Argentina. The capital is Montevideo.

AREA AND POPULATION. The estimated area of the 19 departments constituting the republic is about 72,000 square miles. The census of March 1, 1900, showed a population of 915,647; the census of October 12, 1908, 1,042,668. Of the latter number, 181,085 were foreigners. The department of Montevideo (256 square miles) had 309,231 inhabitants; Canelones, 87,931; Colonia, 54,679; and Minas, 51,170. In December, 1908, the population of Montevideo was estimated at 316,000. The city of Montevideo had, according to the 1908 census, 291,465 inhabitants; other important towns were: Payrandú, 18,741 inhabitants; Salto, 17,658; Mercedes, 14,532; Florida, 12,470; San José, 12,103. In 1907 there were 6444 marriages, 33,657 living births, and 16,744 deaths. In the same year arrivals and departures by sea at Montevideo numbered 149,418 and 129,755, respectively.

EDUCATION. In 1900 about 46 per cent. of the inhabitants over six years of age were illit-

erate. Primary instruction is free and nominally compulsory. In 1907 there were 671 public primary schools, with an enrollment of 60,863 and an average attendance of 44,307, and 289 private primary schools, with enrollment and average attendance of 17,864 and 13,908, respectively. At the end of 1908 the number of public primary schools was 781. There are secondary schools at the departmental capitals, normal schools, and at Montevideo a university. Many religious seminaries are established throughout the country. In 1909 a law was enacted requiring a knowledge of English on the part of public school teachers.

INDUSTRIES. Uruguay's principal source of wealth is stock-raising. Only about 2.4 per cent. of the total area is under cultivation. One of the greatest needs of the country is believed to be the subdivision of the large estancias, or ranches, so as to allow an increase in the number of small farmers and a better system of tilling the soil. By far the most important crop is wheat, to which 617,000 acres were sown in 1908; 410,068 acres were planted to corn, and 64,000 to flax. Wine production was reported at 4,904,321 gallons. Other products, grown in comparatively small quantities, are oats, barley, olives, fruits, vegetables, and tobacco. The estimated number of live-stock in 1908 was as follows: Cattle, 8,000,000; sheep, 20,000,000; horses, 561,000; mules, 23,000; swine, 94,000; goats, 21,000. In the year ending October 1, 1907, 1,193,500 cattle were slaughtered; in the following year, 954,120. Hitherto mineral exploitation has been small. Some gold and coal are mined, and various other minerals are known to occur. The gold output in 1908 amounted to 2709 ounces. There is little manufacturing. The establishment of factories on a large scale is hindered by an insufficient supply of both fuel and materials.

COMMERCE. Special imports and exports of merchandise have been as follows, in gold pesos (the peso is worth \$1.034):

	1906	1907	1908
Imports.....	34,454,915	34,425,205	34,618,804
Exports.....	33,402,024	35,102,821	37,280,523

The principal imports are textiles, food-stuffs, various manufactured articles, and alcoholic beverages. Of the exports, about 90 per cent. are animal products. The principal exports in 1907, the latest year for which statistics are available, were valued as follows: Wool, 14,491,783 pesos; hides, 8,146,720; meat and extracts, 5,690,446; grease and tallow, 1,619,818; live animals, 1,090,602; hair, 324,159; cereals, flour, and pastes, 1,569,107. The leading countries from which imports are received are Great Britain, Germany, France, the United States, and Argentina. The countries taking the largest amounts of exports in 1907 were: Argentina, 7,295,105 pesos; France, 6,431,031; Belgium, 5,551,733; Germany, 4,647,866; Great Britain, 2,993,154; Brazil, 2,759,863; the United States, 1,603,320; Italy, 1,155,704; Cuba, 1,092,966.

COMMUNICATIONS. The length of railways at the end of 1908 is reported at 1447 miles (of which 780 miles were under state guaranty). During 1909 important extensions were under construction. In the summer of 1909 the government entered into a contract for the con-

struction of a line from San Luis, on the Brazilian border, to Colonia, on the River Plata, opposite to and 26 miles from Buenos Ayres. The total length is placed at 378 miles. This line forms part of a plan to secure rapid transit from New York to Pernambuco, Brazil, by high-speed steamers, and thence by rail to Valparaiso via Rio de Janeiro and Buenos Ayres. In 1909 the Brazilian portion of the line was already completed and in operation, with the exception of about 25 miles, and it was expected that the Transandine Railway (completing rail communication between Buenos Ayres and Valparaiso) would be open to traffic by the middle of 1910. The Uruguayan portion, which is financed by Americans, was to be completed within four years. River transportation in Uruguay is important and continues to develop. Montevideo is connected with Europe by 18 regular lines of passenger and freight steamers, and with the United States by six. During 1908 3064 steamers, of 6,783,788 tons, entered the port of Montevideo, and 259 sailing vessels, of 148,925 tons; and cleared 3014 steamers, of 6,642,128 tons, and 295 sailing vessels, of 160,157 tons. At interior ports 380 steamers, of 243,871 tons, entered, and 1076 sailing vessels, of 39,227 tons; and cleared 394 steamers, of 260,864 tons, and 1078 sailing vessels, of 48,541 tons. Of the entrances at Montevideo, 102 steamers and 50 sailing vessels were under Uruguayan register, and at the interior ports 194 steamers and 973 sailing vessels. Extensive port works are under construction at Montevideo, and in 1909 the government decided to develop the port of La Palma and to expend about \$1,000,000 in improvements on the port of Colonia. In 1908 there were 972 post-offices. In 1909 the telegraph offices numbered 319, with 4849 miles of line. Telephone lines in 1908 aggregated 16,568 miles.

FINANCE. The monetary standard is gold. The gold peso, a theoretical coin, is worth \$1.034. Revenue and expenditure for fiscal years have been as follows, in pesos:

	1906	1907	1908
Revenue.....	17,096,660	19,185,327	20,301,737
Expenditure...	17,096,920	19,179,936	20,357,463

For the fiscal year 1909, revenue and expenditure were estimated at 21,079,883 pesos and 21,075,331 pesos, respectively. The principal estimated receipts were: Customs, 12,045,000 pesos; property tax, 2,682,929; factory and tobacco taxes, 1,709,954; trade licenses, 1,225,000. The principal items of estimated expenditure were: National obligations (including service of the debt and railway guaranties), 10,271,134 pesos; war and marine, 2,056,486; interior, 2,993,552; industries and public instruction, 1,568,665; finance, 1,370,960. On December 31, 1908, the public debt stood as follows: External consolidated debt, 118,897,728 pesos; international debts, 2,650,000; unified internal debt, 3,144,350; internal debt of 1902, 1,966,351; guaranties, 3,052,200; debt of liquidation, 206,075; total, 130,157,090. The service of the debt in 1908 amounted to 7,691,423 pesos. The Bank of the Republic, which was established in 1897 and is the only bank of issue, had, on December 31, 1907, issued notes to the amount of 13,084,056 pesos.

ARMY. According to the budget of 1908-9

fortress artillery, 1 battery of Maxim-Vickers rapid-fire guns, 1 battery of fortress artillery, 1 machine gun company, 9 regiments of cavalry, 7 squadrons of cavalry, 7 battalions of infantry, 9 companies of infantry, escort to the President, 1 company of engineers, military academy, military administration, military courts, and arsenal. In addition the police were organized on a military basis and numbered 5000. There was also a national guard of about 100,000, organized in 3 bases and having 120 cannon. The troops were armed with a Mauser rifle model of 1909, and had Schneider-Cunet field guns and Colt and Hotchkiss machine guns. Both Krupp and Schneider were competing in 1909 for the contract for increased armament of field guns.

GOVERNMENT. The executive authority is vested in a president, who is elected by the General Assembly for a term of four years and is assisted by a cabinet of six members appointed by himself and responsible to the Assembly. The legislative power devolves upon the General Assembly, which consists of two houses, the Senate (19 members, one member for each department, elected indirectly for six years) and the House of Representatives (75 members, elected by popular vote for three years). A permanent committee (two Senators and five Representatives) represents the Assembly during recess. The President in 1909 was Claudio Williman, who was inaugurated March 1, 1907.

UTAH. One of the Western Division of the United States. Its area is 84,990 square miles. The population in 1909, according to a Federal estimate made in that year, was 336,122.

MINERAL PRODUCTION. The value of the mineral products of the State in 1908 was \$26,422,121, a decrease of over \$10,000,000 from the value of the product of 1907, which was \$38,095,756. The chief decline was in the value of copper, of which 86,843,812 pounds, valued at \$11,463,383, were produced in 1908, as compared with 64,256,864 pounds, valued at \$12,851,377 in 1907. The coal production showed a decrease in 1908 from the preceding year. The total in 1908 was 1,846,792 short tons, valued at \$3,119,338, as compared with 1,947,607 tons, valued at \$2,959,769 in 1907. The latter half of the year showed a marked improvement over the first half, as a result of improved conditions in the metalliferous mining industry at the end of the year. There was a total of 136 coal-mining accidents during 1908. The total number of men employed in the mines of the State was 2664. The gold production in 1908 also showed a falling off from the production of the preceding year. The comparative figures are as follows: 1908, 190,922 fine ounces, with a value of \$3,946,700; 1907, 247,758, with a value of \$5,121,600. The production of silver and lead suffered a serious setback in 1908 on account of the general financial conditions and the closing of three smelters by decree of the Federal courts in smoke damage suits. The comparative figures are as follows: Lead, 1908, 42,455 short tons, valued at \$3,566,220; 1907, 61,699 short tons, valued at \$6,540,094; silver, 1908, 8,451,300 fine ounces, valued at \$4,520,600; 1907, 11,406,900 fine ounces,

The production of gold in 1909 was 185,993 fine ounces, with a value of \$3,844,800. The production of silver was estimated at 9,533,400 fine ounces, valued at \$4,958,900. This is an increase of 1,082,100 fine ounces over the production of 1908.

The copper output of 1909 showed a considerable increase over that of 1908.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 408,000 bushels, valued at \$355,000, from 13,000 acres; winter wheat, 3,240,000 bushels, valued at \$2,916,000, from 135,000 acres; spring wheat, 2,850,000 bushels, valued at \$2,565,000, from 100,000 acres; oats, 2,536,000 bushels, valued at \$1,319,000, from 55,000 acres; barley, 520,000 bushels, valued at \$343,000, from 13,000 acres; rye, 66,000 bushels, valued at \$46,000, from 3000 acres; potatoes, 2,700,000 bushels, valued at \$1,161,000, from 15,000 acres; hay, 1,088,000 tons, valued at \$9,792,000, from 375,000 acres. Utah ranks among the leading States in the production of sugar beets. The agricultural development of the State has greatly increased in recent years by irrigation projects carried on by the United States Reclamation Service. (See **IRRIGATION**.) The only important farm animals in the State are sheep. They were estimated at 3,177,000 in 1909. The wool clipped in 1909 was estimated at 16,615,200 pounds.

POLITICS AND GOVERNMENT. On January 19 Reed Smoot was reelected by the legislature as United States Senator. A State-wide Prohibition bill introduced into the legislature of 1909 was passed by the House, but was defeated in the Senate on February 20 by a vote of 13 to 5. In April the so-called coal land fraud cases, which had been in the Federal court for several years, were settled. Thousands of dollars had been expended by the government in the employment of special assistant United States attorneys; testimony had been taken before a special referee which covered hundreds of typewritten pages; then the government, through its Attorney-General, directed the United States District Attorney for Utah to dismiss the case, as also the indictments against individuals who had been, and others who were at that date, connected with the Utah Fuel Company, which it had been alleged secured vast tracts of coal lands in Carbon county by fraudulent means. The dismissal of the cases was conditioned upon the payment by the Utah Fuel Company to the government of \$200,000, the reconveying to the government of 1440 acres of coal lands and the payment of a fine of \$8000. The Utah Fuel Company gladly accepted this, as by complying the company secured absolute title to coal lands worth millions of dollars, title to which was involved in the same manner that the case at issue involved. Other cases of similar character, involving lands in Carbon and Emery counties, in which other persons than those connected with the Utah Fuel Company were indicted, were dismissed, the government officials being unable to sustain their charges that the lands had been secured through fraud. All the

cases thus far have, in so far as the government is concerned, proven fiascos.

As a result of the complaints made by business men, commercial organizations, and other citizens of the State that the cities of Ogden, Salt Lake and Provo had been for some time subject to unjust and discriminative freight rates by the railroad companies constituting the principal common carrier service of that section to and from the Pacific coast on the West, and the territory east of the Rocky Mountains, the Attorney-General of the United States, to whom petition for relief had been made, requested the Interstate Commerce Commission to undertake formal proceedings to ascertain what grounds there were for these complaints.

As a result of the election on November 2 Salt Lake City was carried by the American party by a large plurality. The American party was formed to combat Mormon dominance in politics. Its candidate for mayor received about 8000 plurality and a majority of about 2000 over both Democratic and Republican nominees. The entire American general ticket was elected over a fusion of Republicans and Democrats. The Americans elected eight out of ten councilmen, which will give them two-thirds of the council.

LEGISLATION. Among the measures enacted by the legislature of 1909 are those noted below: A State board of land commissioners is authorized to conduct experiments in sinking wells for culinary and domestic purposes on arid land. The right of eminent domain is extended to sites for mills, smelters and other works for the reduction of ores. It is made a misdemeanor for superintendent, foreman, or boss to receive any valuable consideration for employing a person or continuing him in employ. A measure was enacted preventing the portrait of a person being used without his consent for advertising purposes. Irrigation districts are authorized. A dairy and food bureau is authorized with power to enforce sanitary measures. A commission for the conservation of natural resources is created and provision is made for the protection against disease among live-stock.

OFFICERS: Governor, William Spry; Secretary of State, C. S. Tingey; Treasurer, David Mattson; Auditor, Jesse D. Jewkes; Attorney-General, A. R. Barnes; Superintendent of Education, A. C. Nelson; Commissioner of Insurance, G. B. Squires—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Daniel N. Straup; Justices, W. M. McCarty and J. E. Frick; Clerk, H. W. Griffith—all Republicans.

The State Legislature of 1909 was composed of 18 Republicans in the Senate, and 43 Republicans and 2 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article **UNITED STATES**.

VACCINATION. See **SMALLPOX AND VACCINATION**.

VALPARAISO UNIVERSITY. An institution of general and higher learning at Valparaiso, Ind., founded in 1873. The attendance in 1909 was 5376, with 186 members of the faculty. During the year the following changes in the faculty took place: Professor W. F. Ellis was added to the department of pedagogy; Professor Ray Yeoman to the de-

partment of civil engineering and Professor A. W. Linton to the department of pharmacy. There are in the library about 10,000 volumes. The productive funds of the University amount to about \$1,000,000 and the total income to about \$225,000. The president is Henry B. Brown, A. M.

VASSAR COLLEGE. An institution for the higher education of women, at Poughkeepsie, N. Y., founded in 1861. The attendance in 1909 was 1039 students, with 101 members of the faculty. The number of students is limited to about 1000. There were in the library 66,000 volumes. The sum of \$12,500 was received from the alumni toward the general endowment of the college. There were no changes of importance in the faculty during the year. The total productive funds of the college amount to about \$1,360,000, and the income to \$600,000.

VAUGHAN, LAWRENCE J. A Roman Catholic clergyman and writer, died May 10, 1909. He was born in Newark, N. J., in 1864, and was educated at St. Benedict's College, Newark, and studied at other colleges in the West. He adopted the theatrical profession, but later studied for the priesthood. He was ordained priest in 1899. He was the founder of St. Joseph's Roman Catholic Students' Fund for the education of poor boys, and also of the Altoona Institute, a school for boys and girls. From 1903 he was chiefly occupied in lecturing. He wrote poems, and several plays, among them, *Disowned*; *Alice and Alexander*; *Prince Carl*, and *Nance of Old Thunder*.

VENEZUELA. A South American republic, on the Caribbean Sea, between Colombia and British Guiana. The capital is Caracas.

AREA AND POPULATION. The estimated area is about 363,800 square miles. The official estimate of January 1, 1909, placed the population at 2,661,569. The principal cities are Caracas, with about 90,000 inhabitants; Valencia, 40,000; Maracaibo, 35,000; Barquisimeto, 32,000. In 1908 there were 6050 marriages, 71,033 births, 57,088 deaths; immigrants numbered 4280, and emigrants, 3979, against 8350 and 7438 respectively in 1907.

Education is in a very backward condition. Primary instruction is free and nominally compulsory. The reported number of public primary schools on June 30, 1908, was 1150, with an enrollment of 35,777. Besides private subventioned colleges, there are 33 national colleges providing secondary and higher instruction, and a university at Caracas and another at Mérida. The state religion is Roman Catholicism.

INDUSTRIES. Agriculture and stockraising are the most important industries. Parts of the country are rich in metals and other minerals, but exploitation is slight. Manufacturing industries are negligible. The area under coffee is estimated at 200,000 acres; production in 1907, 42,806 tons. The cacao output amounts to over 14,000 tons, and sugar about 3000 tons. Other products of some importance are rubber, tobacco, rice, and wheat. The live-stock are estimated at over 6,000,000 head, including over 2,000,000 cattle, 1,600,000 swine, and 1,600,000 goats. Pearl fishery in the vicinity of Margarita Island has been a remunerative industry, but threatened extinction of the beds has necessitated the repeal of the pearl-fishery concession. Of the mineral deposits, gold (especially in the Yuruari region),

abolished, and the cigarette monopoly was abolished. General economic development in Venezuela is retarded by lack of transportation facilities, and by the frequently unsettled political conditions.

FOREIGN COMMERCE. Imports and exports for fiscal years have been valued in bolivars as follows:

	1906	1907	1908
Imports.....	50,191,379	53,858,199	54,421,000
Exports.....	81,940,205	81,282,837	78,145,000

The principal articles of import are cereals, flour, and kerosene, chiefly from the United States; textiles, machinery, hardware, and coal, largely from Great Britain; rice and cement, largely from Germany; wines and silks, chiefly from France. The leading exports in the fiscal year 1908, were valued as follows, in bolivars: Coffee, 35,243,000; cacao, 20,929,000; rubber, 5,286,000; hides and skins, 4,399,000; cattle, 3,951,000; gold, 1,660,000; asphalt, 1,062,000. Of the coffee export, about one-half goes to the United States; of the cacao, about two-thirds to France; and most of the cattle to Cuba. The trade by countries in the fiscal year 1908 was valued as follows, in bolivars:

Countries	Imports	Exports
Great Britain	19,060,000	7,239,000
United States	15,365,000	27,762,000
Germany	9,745,000	4,541,000
Netherlands	4,765,000	3,818,000
Spain	8,078,000	2,948,000
Italy	1,531,000	478,000
France	789,000	27,463,000
Cuba .....	.....	3,020,000
Other Countries	88,000	856,000

COMMUNICATIONS. The length of railways is reported at about 540 miles. This figure is exclusive of the Central Railway extension to Ocumare, which was under construction, and a part completed, in 1909. In 1908 the railways carried 413,002 passengers (traffic valued at 1,306,539 bolivars) and 183,834 metric tons of freight; the total income was 8,878,127 bolivars, and the expenditures 6,123,207 bolivars. A regular steamer service is maintained on the Orinoco, Apure, and Portuguesa between Ciudad Bolívar, the principal port on the Orinoco, and the interior, as well as points along the coast. In 1909 the government entered into a contract for the establishment, beginning at the port of Pericos on the Orinoco, of a combined service of steamers and automobiles along the Atures and Maipures (Orinoco affluents) for both passenger and freight transportation. There entered the ports in 1908, 645 vessels, of 937,680 tons. The merchant marine in 1909 consisted of eight steamers, of 2040 tons, and 18 sailing vessels, of 2836 tons. In 1908 the post-offices numbered 230, and the telegraph offices 169, with 4756 miles of line.

FINANCE. In 1906 revenue and expenditure amounted to 49,293,067 bolivars and 51,874,604 bolivars respectively (the bolivar is equivalent to the franc, or 10.3 cents). Customs

For the fiscal year 1907, the estimated revenue and expenditure balanced at 42,307,700 bolivars; for the fiscal year 1908, 50,803,142 and 49,375,196 respectively; for 1908-9, 44,092,625 and 37,205,485 respectively. On July 31, 1908, the debt stood as follows: Diplomatic debt of 1905, 132,049,925 bolivars; diplomatic (French, Spanish, Dutch), 7,014,569; French (1903-4), 5,733,490; internal consolidated, 63,171,818; unconsolidated in circulation, 4,561,742; total, 212,531,544 bolivars.

ARMY. The active army was composed of 20 battalions of infantry, each of a normal strength of 400 men, 8 batteries of artillery of 200 men each, and a battalion of marines.

GOVERNMENT. Venezuela is one of the five American republics having the federal form of representative government, the others being the United States, Mexico, Brazil, and Argentina. A new constitution was promulgated August 5, 1909. Under the former constitution, of April 27, 1904, Venezuela was divided into 13 states, five territories, and a Federal district. According to the new constitution, the country is divided into 20 states, two territories, and a Federal district. The states are Apure, Aragua, Anzoátegui, Bolívar, Carabobo, Cojedes, Falcón, Guárico, Lara, Monagas, Mérida, Miranda, Nueva Esparta, Portuguesa, Sucre, Táchira, Trujillo, Yaracuy, Zamora, and Zulia. The territories are Amazonas and Delta Amacuro. The constitution vests the executive authority in a president, elected by the Congress for a term of four years. The Congress also selects a Council of Government, consisting of 10 members, to serve for four years, and the Council choose the two Vice-Presidents. The legislative power devolves upon a congress of two houses, the Senate and the Chamber of Deputies. The Senate consists of 40 members, two for each state, elected for four years. One deputy is allowed for each 35,000 inhabitants; and any state having less than 35,000 inhabitants is entitled to one deputy, or, having an excess of 15,000, to two deputies. Deputies are elected for four years. The President in 1909 was General Juan Vicente Gómez. When President Cipriano Castro left the country in December, 1908, General Gómez, as Vice-President, became Acting President; on August 13, 1909, he assumed office as President.

HISTORY. The chief events of 1908 were the trouble between Venezuela and the Netherlands, resulting in the severance of diplomatic relations and in reprisals by Dutch war vessels on the Venezuelan coast, the departure of President Castro after nine years of misrule to Europe, and the succession of General Gómez to the Presidency. The latter immediately took measures to restore friendly relations with the Netherlands as well as with other Powers which the Castro government had offended. In March, 1909, the High Federal Court of Venezuela decided that President Castro had been guilty of an attempt to assassinate acting-President Gómez, and he was therefore suspended from the Presidency. A little later Castro started from Bordeaux, France, for the West Indies. At Trinidad he was refused a landing by the British authorities. Castro then landed at

Fort de France on the island of Martinique, but received notice from the French Governor that he must leave in nine hours. He refused to do this and was carried to his vessel by gendarmes. At the same time it was announced that the Danish authorities at St. Thomas in the Danish West Indies would refuse him a landing, and his wife and her party were refused a landing at La Guayra or means of communicating with the shore. (See *NETHERLANDS*, paragraphs on *History*.) As a result of the reports of the United States Special Commissioner, William I. Buchanan, a protocol was signed on February 15 between Venezuela and the United States in settlement of the long-standing differences between the two countries. By this the claims of the United States and Venezuela Company, the Orinoco Steamship Company and the Orinoco Corporation were to be submitted to the Hague Tribunal; the claim of a French citizen who had taken out American naturalization papers and had been expelled by former President Castro was settled by an award of cash. The much discussed claim of the New York and Bermudez Asphalt Company had previously been settled by direct negotiation through the efforts of Commissioner Buchanan. By this, the company's property was restored to it; and the suit against it for its alleged support of the Matos rebellion was dropped. On the other hand, the company paid the government a cash indemnity and a certain fixed annual contribution. See *ARBITRATION, INTERNATIONAL and UNITED STATES, Foreign Relations*.

VERMONT. One of the North Atlantic Division of the United States. Its area is 9564 square miles. The population in 1909, according to a Federal estimate made in that year, was 353,739.

MINERAL PRODUCTION. The chief mineral products of the State are stone in its several varieties. Of these marble and granite form the greater part of the production. In the quarrying of marble Vermont greatly surpasses any other State. The value of this product in 1908 was \$4,679,960, as compared with a value in 1907 of \$4,596,724. Granite was produced in 1908 to the value of \$2,451,933 and in 1907 to the value of \$2,693,889. A small quantity of limestone is also produced. The total value of the mineral products of the State in 1908 was \$7,152,624 and in 1907, \$7,313,739. The State ranks first in the production of stone, surpassing Pennsylvania, which in 1907 held the first place. Slate is produced in large quantities. The value of this product in 1908 was \$1,710,491, as compared with a value of the product of 1907 of \$1,477,259. Manufactures of clay products in 1908 were valued at \$89,064, as compared with a value of \$109,500 in 1907. Among other products are mineral waters, coal products, lime, metallic paint, sand and gravel, talc and soapstone. The value of the mineral products of the State in 1908 was \$9,313,120, as compared with a value of the product in 1907 of \$9,464,857.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops in the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 2,405,000 bushels, valued at \$1,756,000 from 65,000 acres; oats, 2,608,000 bushels, valued at \$1,304,000 from 81,-

000 acres; barley, 450,000 bushels, valued at \$346,000 from 15,000 acres; rye, 31,000 bushels, valued at \$31,000 from 2000 acres; buckwheat, 176,000 bushels, valued at \$134,000 from 8000 acres; potatoes, 4,650,000 bushels, valued at \$2,046,000 from 30,000 acres; hay, 1,099,000 tons, valued at \$16,155,000 from 879,000 acres; tobacco, 335,000 pounds, valued at \$50,250 from 200 acres. The hay crop, which is the most valuable agricultural product of the State, showed a slight increase in 1909 over 1908, when the production was 986,000 tons. The acreage increased about 9000. The farm animals in the State on January 1, 1910, were estimated as follows: Horses, 94,000; dairy cows, 285,000; other cattle, 210,000; sheep, 229,000; swine, 95,000. The wool clipped in 1909 was estimated at 1,155,680 pounds. The output of dairy and poultry products of the State is large.

EDUCATION. The school enrollment in 1909 was 66,174. There were 311 male teachers, and 2826 female. The average monthly salaries of male teachers in high schools was \$95.72, and of female teachers, \$47.12. In the elementary schools the average for male teachers was \$34.52 and for female teachers, \$32.87. Among the changes in school policy in 1909 was the abolishment of the county system of examination of teachers. Examinations are now conducted by union superintendents. Provision was also made during the year for aid in industrial education. The total expenditures for education during the year was \$1,607,654.

CHARITIES AND CORRECTIONS. Among the charitable and correctional institutions of the State are the Soldiers' Home, Brattleboro Retreat, State Hospital for the Insane, House of Correction and State Prison. There are also orphans' homes and homes for dependent children, and other similar institutions which are maintained privately. The Governor of the State is, by authority of his office, commissioner of the deaf, dumb, blind, idiotic, feeble-minded or epileptic children of indigent parents. A sum not exceeding \$20,000 is annually appropriated for the instruction of these beneficiaries in institutions in other States. There is also a sanatorium for consumptives at Pittsford, Vermont.

POLITICS AND GOVERNMENT. Town and city elections were held throughout the State on March 2, the vote on license being the common point of interest. The number of places voting for license to sell intoxicating liquors was 25, compared with 27 in 1908. Among the larger towns voting for license were Burlington, St. Albans, Northfield, Bennington, Winooski and Vergennes. Rutland changed from license to no-license. The contest for mayor in Burlington was close. James E. Burke defeated Mayor W. J. Bigelow by 18 majority. Mr. Burke has run for mayor eight times and has won five elections. Citizens' candidates were elected in Barre, Montpelier and St. Albans.

OTHER EVENTS. The year was rendered memorable in Vermont by the centenary celebration of the discovery of Lake Champlain, by the great French explorer Samuel de Champlain, held under the auspices of the State. The chief feature of the observance, held during the week beginning July 4, was the celebration in Burlington, which was participated in by President Taft and other representatives of the Federal government, Ambassador Bryce, of Great Britain; Ambassador Jusserand, of France;

below: A State Board of Agriculture and Forestry was created and provision made for the inspection of nursery stock brought into the State. Several measures improving and extending the educational system were passed and provision was made for a beginning in manual training schools. Important amendments were made for the better enforcement of the child labor law. An appropriation of \$75,000 a year for permanent highways was authorized. A public service commission was created to which any person aggrieved by a public service company may appeal. Cities and towns were given power to compel a pure milk supply. Precautions were taken against the spread of tuberculosis. The act to regulate the practice of medicine and surgery was amended to make it more effective against charlatans, but it does not apply "to persons who merely practice the religious tenets of their church without pretending a knowledge of medicine or surgery."

OFFICERS: Governor, George H. Prouty; Lieutenant-Governor, John H. Mead; Secretary of State, Guy W. Bailey; Treasurer, Edward H. Deavitt; Auditor, Horace F. Graham; Bank Commissioner, Frank C. Williams; Attorney-General, J. G. Sargent; Superintendent of Education, Mason S. Stone; Commissioner of Insurance, E. H. Deavitt, and Guy W. Bailey; Commissioner of Agriculture, O. L. Martin—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, John W. Rowell; Assistant Justices, Loveland Munson, John H. Watson, Seneca Haselton, George M. Powers; Clerk, M. E. Smilie—all Republicans, except Haselton.

The State Legislature of 1909 was composed of 28 Republicans and 2 Democrats in the Senate, and 201 Republicans, 39 Democrats, 3 Independent Democrats, and 1 Independent Republican in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

VETERINARY SCIENCE. The number of veterinary schools in this country, graduates of which are admitted to the United States Civil Service examinations for veterinary inspectors in the Federal service, has continued to increase, four additional schools qualifying during the year, making a total of fifteen now in session in the United States and Canada. The great demand by the public for a better meat inspection, for milk from healthy animals, etc., has led to a great demand for veterinary inspectors, resulting in an increased attendance at veterinary schools. Veterinary education suffered a great loss during the year in the death of Dr. Leonard Pearson, Dean of the Veterinary Department of the University of Pennsylvania.

TUBERCULOSIS. Tuberculosis continued to receive more attention than any other disease. In this country the Federal Department of Agriculture and many of the States are conducting investigations along lines leading to the control and eradication of the disease from among farm animals. Numerous workers have studied the new method of applying tuberculin. A simultaneous application of the ophthalmic and dermic tests followed by the subcutaneous test

dairy cattle are most susceptible to the infection, since they are usually kept under artificial conditions and often subject to high pressure of feeding in dark, damp, badly ventilated barns, which reduces their resistance to disease.

The Federal Bureau of Animal Industry conducted investigations to determine the prevalence and extent of the disease among dairy cattle, the tuberculin test being applied to numbers of cattle in several sections of the country. Out of 8809 cattle in nine States and the District of Columbia thus tested during the fiscal year 744, or 8.45 per cent. reacted as tuberculous. A much higher proportion of disease was found among dairy cattle supplying milk to cities than among animals offered for interstate shipment, the proportion in the former class being about 14 per cent.

Tuberculosis in swine is largely due to feeding dairy by-products from infected cows. An investigation of this disease during 1909, as it simultaneously affected hogs and poultry on an Oregon ranch, demonstrated that its transmission from fowls to swine readily occurs. Wisconsin has passed a law which requires the pasteurization of all dairy by-products returned to the farm from creameries and cheese factories, and also requires that breeding and dairy cattle brought into the State shall be accompanied by a tuberculin test certificate showing freedom from the disease. Twenty-six States already have laws prohibiting the shipment of tubercular cattle from State to State.

It seems definitely established that there are two distinct types of tubercle bacilli, the human and the bovine, which in a majority of the cases investigated have characteristics sufficiently fixed so that mutation from one type to the other does not occur. In a series of 306 cases among human beings the bovine type of the bacillus was demonstrated in 20 per cent. Thus, aside from the great loss from tubercular cattle, swine, and other animals, estimated at not less than \$15,000,000 annually, it is seen that the dangers from bovine tuberculosis to man are sufficiently great to warrant strict precautions against it. One of the leading investigators of the disease concludes that for the protection of public health it is imperatively necessary that regulations should be made requiring either that all milk be obtained from cows free from the disease, stabled, milked, pastured, etc., in an environment free from tuberculous infection, or that it be sterilized or pasteurized before it is used as a beverage or in the manufacture of butter and other dairy products. Various cities have passed stringent regulations prohibiting the sale of milk and its products from any but cows free from tuberculosis. Such an ordinance became effective in Chicago on January 1, 1909, since which time many other cities have followed the example. Fourteen cities in Wisconsin are said to have passed ordinances requiring the tuberculin test of all cows whose milk is sold; thus, if properly enforced, over 25 per cent. of the population of the State will be protected by these ordinances.

FOOT-AND-MOUTH DISEASE. Foot-and-mouth disease, or apthous fever, which was first observed early in November, 1908, in a herd of cattle near Danville, Pa., was eradicated and the

Federal quarantine removed on April 24, 1909. In this work 572 men were employed by the Government, of whom 159 were veterinarians. In addition to \$300,000 expended by the Bureau of Animal Industry, about \$112,000 was spent by the four affected States. The outbreak was found to have originated from calves used for the propagation of smallpox vaccine. It seems probable that the contamination was originally introduced with vaccine virus imported from Japan in 1902, and that the New England outbreaks of that year originated from the same source. An outbreak of the disease was reported to have occurred in Edinburgh, Scotland, in 1908, in which 244 animals were destroyed before the disease was stamped out. The infection was traced to baled hay which had been imported from Holland fully 2½ months before it was brought in contact with the animals which developed the disease.

TEXAS FEVER. Under the appropriation of \$300,000 for the fiscal year ending June 30, 1909, the work of exterminating the cattle tick was continued, 13,544 square miles of territory being released from quarantine. Since the beginning of the work in the summer of 1906 areas aggregating 71,336 square miles have been released as the result of the eradication of the tick. A great improvement has already resulted from this work. More cattle are being raised and a better grade of breeding stock is being introduced; calves grow faster and cattle put on flesh more rapidly during the grazing season, while higher prices are being obtained when marketed. The difference between the prices realized for cattle from the tick infected region and the prices of cattle of similar grades from above the quarantine line ranges from \$2.25 to \$5 a head at the principal northern live-stock markets, without taking into account the improvement in quality and weight of cattle because of the eradication of the ticks. As more than 1,000,000 cattle from the quarantined area are annually sold in these markets, the extermination of the ticks means an annual increase of at least \$3,000,000 in the prices obtained for southern cattle sold in northern markets. The tick which transmits the disease in this country does not occur in England, but the two species which do occur have been found to play the same rôle. Nuttall and Hadwen, working in England, have found that trypanblau promises to be an efficient remedy for this disease in cattle, as it has been in canine piroplasmiasis.

HOG CHOLERA. Investigations of the year have shown that the process of hyperimmunization, which is necessary in the production of serum, and which was first carried out by injecting diseased blood subcutaneously into the immune hog, can be accomplished quite as well by intravenous injection. In this way the highly potent protective serum is produced by using only half the quantity of diseased blood required if subcutaneous injections are given. In the case of immunes treated intravenously the carcasses of the hogs killed for serum are in excellent condition and appear to be entirely suitable for food. As the cost of hogs is one of the chief items of expense in serum production, this intravenous injection of immunes is regarded as a very valuable improvement, tending to reduce the cost of the serum very materially. Twenty States have now undertaken the preparation of the serum to a greater or less extent. Eleven States have each appro-

printed sums of money exceeding \$1500 per annum for starting the serum production for the benefit of hog raisers, and 25,000 hogs have been treated with serum so prepared. It is thought that the extensive use of this serum will result in the eradication or at least the elimination, of hog cholera as a serious menace to hog-raising interests.

VICTORIA. A State of the Australian Commonwealth. Area, 87,884 square miles. Estimated population (December 31, 1908), 1,273,313. Capital, Melbourne, with an estimated population (December 31, 1908), including suburbs, of 549,200. The executive power is exercised by a governor, appointed by the Crown and assisted by a responsible ministry of 11 members. The Parliament consists of the Legislative Council (34 members, elected for six years) and the Legislative Assembly (65 members, elected for three years). The Governor in 1909 was Sir Thomas D. Gibson-Carmichael; the Premier and Minister for Labor, John Murray. For statistics and other details, see AUSTRALIA.

HISTORY. The Ministry of Sir Thomas Bent was overthrown early in January by a majority of 12 chiefly on account of personal charges of corruption, and a coalition of Ministerialists and Independents agreed on a cabinet under the premiership of Mr. John Murray and representing both parties. It was opposed to the Labor programme and its policy was announced as having for its main feature progressive land legislation including a land tax. On the opening of Parliament on June 30 the Governor, Sir Thomas Gibson-Carmichael announced that the government, recognizing the need of changing the incidence of land taxation, would introduce a bill to tax unimproved land values and so framed as to encourage the cultivation and settlement of arable land while at the same time meeting the shortage in the revenues; he also promised a bill for the establishment of a State coal mine at Powlett, where valuable deposits have been found. He announced that the government would apply itself to the problem of irrigation. A bill for amending the State Closer Settlement Act was brought in in July and reached its second reading in October. It provided for advances to settlers not to exceed £200,000 a year and a grant of £500,000 a year for three years to purchase lands for closer settlement. It gave the authorities the right to take the land if the land-owner would not sell it, the compensation to be afterwards fixed by a Judge of the Supreme Court. In the Powlett River basin, which, according to the government's plan was to be kept for the State, experimental bores disclosed seams with an estimated yield of 32,000,000 tons. Great damage to property and some loss of life resulted from the heavy rains which on August 19 caused the most serious flood known for forty years. Large areas, including a number of towns, were covered with water.

VIRGINIA. One of the South Atlantic Division of the United States. Its area is 42,267 square miles. The population in 1909, according to a Federal estimate made in that year, was 2,032,507.

MINERAL PRODUCTION. The chief mineral products of Virginia are coal and iron. The State, in common with most of the other States mining coal, showed a decreased production in 1908 over 1907. There were produced in the former

quantity of coal made into coke. Virginia is the first State from which bituminous coal was mined in the United States. It was taken from what is usually termed the Richmond Basin, a small area in the southeastern portion of the State near the city of Richmond. The Black Mountain Field, to which a railroad was built in 1906, shows a greatly increased production. There were employed in the coal mines of the State in 1908, 6208 men, as compared with 6670 in 1907. There were no strikes or lockouts during 1908, the fifth year in succession in which this condition existed. There were manufactured in 1908, 1,162,051 short tons of coke, valued at \$2,121,980, as compared with a production of \$1,545,280 tons, with a value of \$3,765,733 in 1907. There were 19 coking establishments, with 4853 ovens built and 158 building. A small amount of copper is mined, the production in 1908 being 24,775 pounds, valued at \$3270. Gold was produced to the amount of 118.57 fine ounces, valued at \$2451, and a small amount of silver was also mined. The State contains deposits of zinc and in 1908 1,410,961 pounds of spelter were produced with a value of \$66,315. Lead also is found and in 1908 76,190 pounds were produced. Clay products to the value of \$1,499,130 were produced, as compared with a value of \$1,611,335 in 1907. Stone is mined in large quantities, chiefly granite and limestone. Other important products are coal products, talc and soapstone, pyrite, mineral waters, lime, slate, sand and gravel, manganese ores and barytes. The value of the mineral products of the State in 1908 was \$13,127,395, as compared with a value of the product in 1907 of \$19,313,182.

The coal production of the State in 1909 was nearly equal to that of 1907 and surpassed that of 1908.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 47,328,000 bushels, valued at \$35,023,000 from 2,040,000 acres; winter wheat, 8,848,000 bushels, valued at \$10,175,000 from 790,000 acres; oats, 3,800,000 bushels, valued at 2,052,000 from 200,000 acres; barley, 86,000 bushels, valued at \$61,000 from 3000 acres; rye, 184,000 bushels, valued at \$155,000 from 15,000 acres; buckwheat, 378,000 bushels, valued at \$287,000 from 21,000 acres; potatoes, 5,520,000 bushels, valued at \$3,864,000 from 60,000 acres; hay, 606,000 tons, valued at \$8,060,000 from 460,000 acres; tobacco, 120,125,000 pounds, valued at \$10,210,625 from 155,000 acres. In the production of tobacco the State ranks third, being surpassed only by Kentucky and North Carolina. The tobacco crop of 1909 was considerably larger than that of 1908, which was 114,100,000 pounds. The acreage increased from 140,000 to 155,000 acres. The number of farm animals on January 1, 1910, was estimated as follows: Horses, 323,000; mules, 54,000; dairy cows, 297,000; other cattle, 578,000; sheep, 522,000; swine, 774,000. The wool clipped in the State in 1909 was estimated at 1,843,200 pounds. The cotton crop of 1909-10 was estimated at 10,000 bales.

FISHERIES. The value of the product of the

were taken for market purposes, and 1,402,900 bushels, valued at \$381,120, were taken for seedling purposes. Next in point of value was shad, of which 7,314,400 pounds, valued at \$486,070, were taken. Of menhaden, 190,089,200 pounds were taken, valued at \$429,060. Other important fish taken were squeteague or trout, \$139,300; hard crabs, \$238,950; soft crabs, \$86,590; croakers, \$118,810; alewives, \$170,840; and Spanish mackerel, \$24,720. There were engaged in the fisheries of the State 10,324 independent fishermen, with 9742 wage-earning fishermen employed. The vessels employed numbered 946, valued at \$1,155,028.

POLITICS AND GOVERNMENT. There was no meeting of the legislature in 1909 as the meetings are biennial and the last was held in 1908. Local elections were held during the year on the question of license or no-license. On July 8 the town of Bristol voted for license by a majority of 38 votes out of a total of 458 votes cast. The result of this vote gives the States of Virginia and Tennessee a shipping point for liquor. It was asserted by the advocates for liquor that the city would gain great wealth by reason of the vote as it becomes the shipping point for Virginia, Tennessee, Western North Carolina, Alabama, Georgia and Mississippi. The city is half in Virginia and half in Tennessee. The Tennessee side voted for no license in 1908. In December, 1908, the city of Roanoke voted for no-license, but the election was set aside, and the no-license leaders, on August 16, presented a petition containing more than 600 names, to Judge W. R. Staples of the Corporation Court asking him to order a local option election for the city in the latter part of September. The no-license party thereupon asked for a writ of error to prevent the election. This was refused by the State Supreme Court and the election was held on September 30, the result being no-license. In June the city of Petersburg voted to retain the saloons, giving a majority of nearly 500 out of a vote of about 2000. On July 22 the city of Staunton voted for no-license, but the election was contested and on September 22 the court upheld the result of the election, deciding in favor of no-license by 22 votes. On August 24 the city of Harrisonburg voted to retain the saloons by a majority of 43 out of a total vote of 714. On September 30, Rocky Mount district, of Franklin county, voted for license by a majority of three. Buena Vista voted "dry" December 23 by a decided majority.

On January 26 the Supreme Court of the State refused the petition of the railroads for an appeal from the decision of the State Corporation Commission fixing the passenger rate for interstate traffic at 2 cents per mile. In 1908 the United States Court of Appeals reversed the findings of the Federal Circuit Court on the question of jurisdiction, saying that, in their opinion, the railroads had proceeded wrongly in appealing to the Federal Court direct, also that in the event that the time limit in which the appeal might have been taken had expired, then the decision rendered by Judge Jeter C. Pritchard in the United States Circuit Court must be affirmed.

On March 16 the State Corporation Com-

mission fixed the passenger rate at 2½ cents a mile, and the original litigation was ended.

The Democratic State Convention for the nomination of State officers nominated—for Governor, William Hodges Mann, and for Lieutenant-Governor, J. Taylor Ellyson. The Republican State Convention nominated—for Governor, W. P. Kent, and for Lieutenant-Governor, A. T. Lincoln. In the election held on November 2 the Democratic State ticket was elected by a majority of about 33,000. An entire new House of Delegates was elected in which the Republicans lost two members. This gives the minority party a representation of about 13 against 87 Democrats. The liquor issue was not important in the campaign.

On March 1, Judge Pritchard in the United States Court of Appeals upheld the safety appliance act, and upheld the decision of the lower court which had given damages to an employee because of an accident which had resulted from a safety coupler being out of repair.

OTHER EVENTS. On April 30, the town of Alexandria observed the 120th anniversary of the first inauguration of George Washington as President of the United States. President Taft, Vice-President Sherman, Speaker Cannon and other distinguished persons were present. An oration was delivered by Governor Swanson, and President Taft spoke briefly. November 1, Congressman Francis R. Lassiter, of Petersburg, died suddenly. On December 30, the city of Portsmouth had a disastrous fire, some forty buildings in the business section being burned. September 1, the first asylum for the education of negro deaf, dumb and blind was opened for pupils at Hampton. The institution is supported by the State and is managed by whites. There were fifty pupils at the end of 1909. The completion of a million dollar water plant on December 25, brought clear water to the city of Richmond.

OFFICERS: Governor, William H. Mann; Lieutenant-Governor, J. T. Ellyson; Secretary of Commonwealth, B. O. James; First Auditor, Morton Marye; Treasurer, A. W. Harman, Jr.; Superintendent of Instruction, J. D. Eggleston; Attorney-General, Samuel W. Williams; Commissioner of Agriculture, George W. Koener; Commissioner of Insurance, Joseph Button—all Democrats.

JUDICIARY. Supreme Court of Appeals: President, James Keith; Justices, S. G. Whittle, John A. Buchanan, George M. Harrison, and Richard H. Cardwell; Clerk of the Court, H. Stewart Jones—all Democrats.

The State Legislature of 1909 was composed of 34 Democrats and 6 Independents and Republicans in the Senate, and 86 Democrats, and 14 Independents and Republicans in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

VIRGINIA, UNIVERSITY OF. An institution of higher learning at Charlottesville, Va., founded in 1819 by Thomas Jefferson. The attendance in 1908-9 was 785 and the instructors numbered 73. The University includes departments of liberal arts, law, graduate departments, departments of applied science and departments of medicine. Tuition is free to Virginian students in the academic schools and there are a number of scholarships. The productive funds of the University amounted in

1909 to \$1,567,411 and the total income to \$1,076,887. The president is Edwin A. Alderman.

VIRGIN ISLANDS. A group of West Indian Islands, of which Tortola, Virgin Gorda, and Anegada belong to Great Britain (Denmark owns Santa Cruz, St. Thomas and St. John) and form a presidency of the Leeward Islands (q. v.). Area 58 square miles; population (1901), 4908; 1908 (estimated), 5143. Capital, Road Town. Imports for 1907-8, £7009, and exports (sugar, cotton, fish, poultry, copper, etc.), £8027; revenue, £3971; expenditure, £4307. Commissioner and Treasurer (1909), R. S. Earl.

VITAL STATISTICS. According to the monthly bulletin of the New York State Department of Health, there were 195,701 births during the year ending October 30, 1909. In the same period the total number of deaths was 137,342. This gives a gain in native population of 58,359. The male births outnumbered the female by 6232, there being a total of 100,947. New York City's net gain in native population was 47,092, the number of births being 119,295, and deaths 72,203.

The following statistics were compiled from the Public Health Reports of the United States Marine Hospital Service. These figures, while admittedly incomplete and often misleading, particularly as regards foreign countries, are the best obtainable.

SMALLPOX. There were in all 19,691 cases of smallpox in the United States, with 90 deaths. Among foreign countries large numbers of cases were reported from the following: Brazil, 2082 cases, 1238 deaths; Egypt, 4416 cases, 1128 deaths; India, 4124 cases, 285 deaths; Italy, 1622 cases, 149 deaths; Russia, 1912 cases, 697 deaths; Tripoli, 424 cases, 171 deaths.

YELLOW FEVER. There were no cases of yellow fever reported in the United States during 1909, and only 3 cases and 1 death in Cuba. Mexico had 75 cases, 38 deaths. The South American countries which suffered most were: Brazil, 345 cases, 272 deaths; Ecuador, 159 cases, 40 deaths; Dutch Guiana 32 cases, 8 deaths. A few sporadic cases occurred in Colombia, British Guiana, Martinique, Curaçoa, Portugal, Trinidad, and Venezuela.

CHOLERA. In Russia and the East there were many thousands of deaths from cholera, distributed as follows: Ceylon, 16 cases, 13 deaths; China, 23 cases, 420 deaths; India, 2867 cases, 33,547 deaths; Indo-China, 28 cases, 21 deaths; Japan, 233 cases, 106 deaths; Java, 782 cases, 231 deaths; Korea, 1072 cases, 651 deaths; Manchuria, 35 cases, 30 deaths; Persia, 1003 cases, 500 deaths; Philippines, 4489 cases, 3253 deaths; Russia, 20,562 cases, 8760 deaths; Siberia, 99 cases, 67 deaths; Straits Settlements, 187 deaths; Sumatra, 220 cases, 113 deaths. In Europe Belgium had 9 cases with 6 deaths; Germany 37 cases, 8 deaths; Netherlands, 56 cases, 18 deaths.

PLAGUE. This disease was distributed pretty generally over the world. Those countries which had any considerable number of cases were: Azores, 31 cases, 12 deaths; Australia, 31 cases, 13 deaths; Brazil, 220 cases, 133 deaths; Chile, 225 cases, 45 deaths; China, 1049 cases, 5313 deaths; Ecuador, 231 cases, 278 deaths; Egypt, 622 cases, 222 deaths; India, 149,500 cases, 120,181 deaths; Indo-China, 176 cases, 170 deaths; Japan 1552 cases, 785 deaths;

deaths.

VITRALIN. See **CHEMISTRY, INDUSTRIAL.**

VIVISECTION. The latest available statistics show that there are forty laboratories in Germany, twenty in France, twenty in England, twenty in Italy and fifty in all other countries in which experiments on animals are made. In round numbers an average of 5 animals are killed each day in each of these 150 institutions. As to the condition under which vivisection is carried on, the methods obtaining in the English laboratories may be taken as an example. Under the carefully enforced British act of Parliament, according to the sworn statements of government inspectors, there were in 1909, 73,000 operations on animals; 96.5 per cent. of these operations were merely inoculations or hypodermic injections, while the remainder were done under anaesthesia. Considering the fact that at least two thousand million animals die every year (in the United States alone there are killed annually for food purposes 50,000,000 bees, sheep and hogs and 250,000,000 fowls) the number of animals devoted to experimentation seems exceedingly small. The continuous agitation of the anti-vivisectionists has had at least the effect of calling attention to the vast benefits derived from animal laboratory work—much of which can no longer be called experimental, as, e. g., the production of diphtheria antitoxin. According to indisputable statistics in France alone the lives of 1,350,000 children have been saved by antitoxin in 15 years. Another example is puerperal fever. Before Dr. O. W. Holmes's discovery of the cause of this disease, elaborated and made practical by Pasteur, the mortality rate among women in the maternity hospitals of Europe was sometimes as high as 40 per cent. At the present time it is 0.02 per cent. For a full review of the subject, see the *North American*, Philadelphia, February 8, 1909.

VLADIMIR. A Grand Duke of Russia, died February 10, 1909. He was born in 1847 the son of Alexander II. He held, for many years, the post of commander-in-chief in St. Petersburg, and was suspected of having given orders for the massacres of January 22, 1905, although this he steadily denied. He married, in 1874, Marie, daughter of the Grand Duke of Mecklenburg-Schwerin.

VOCATIONAL TRAINING. See **EDUCATION IN THE UNITED STATES.**

VOLUNTEERS OF AMERICA. A philanthropic, social and Christian movement inaugurated in March, 1896, and incorporated on November 6, 1896. It is organized in the military style, having as its model the United States army, but in conjunction with military discipline and methods of work it possesses a thoroughly democratic form of government. Its constitution and by-laws are framed by a Grand Field Council who represent the minor councils of officers throughout the country. Though only 13 years old the Volunteers have representatives and branches of their work in almost all the principal centres of the United States. They maintain some 35 principal homes and institutions, most of which

received under the care of and permanently aided by the Volunteers. The Volunteer Commission workers in their visitation called upon and aided in some form or other 33,338 families during the year. These were chiefly in the poorer sections of the large cities. In the different permanent philanthropic homes and institutions maintained by the organization, 435,008 lodgings have been given, while 350,719 free meals were donated, and 148,112 meals were distributed to persons who paid for them, many doing so by work. The latest undertaking of the Volunteers is the Volunteer Hospital Work. The Hospital is located at 93 Gold Street, New York. Into it there have been 640 separate admissions to the wards, 1143 ambulance calls and 7884 patients admitted to surgical and medical wards. A total of 47,697 cases of all kinds were surgically and medically treated in the institution during the year. The Volunteer Prisoners' League has embraced some 60,000 members since its inauguration. It has leagues in nearly 20 State prisons, and over 70 per cent. of those who have left the prison through the Hope Halls sustained by the organization are living reformed and honest lives. Through the Fresh Air branch of work 32,063 mothers and children have been taken from crowded cities for a change in the open air. The President of the Volunteers is General Ballington Booth.

WAGE EARNERS' COMPENSATION AND INSURANCE. See **CIVIC FEDERATION, NATIONAL AND EMPLOYERS' LIABILITY.**

WALDEN INVERSION. See **CHEMISTRY.**

WALES. See **GREAT BRITAIN.**

WARD, SETH. An American Bishop of the Methodist Episcopal Church, South, died September 20, 1909. He was born in Leon county, Texas, 1858, and was educated in the public schools of that State. He was ordained a clergyman in 1881 and served as pastor in several towns in Texas. In 1902-1906 he was assistant missionary secretary of the Methodist Episcopal Church, South. He was elected bishop in 1906.

WASHINGTON. One of the Western Division of the United States. Its area is 69,127 square miles. The population in 1909, according to a Federal estimate made in that year, was 662,866.

MINERAL PRODUCTION. The coal production of the State showed a marked decrease in 1908 from the production of 1907. In the former year there were mined 3,016,567 short tons, having a spot value of \$6,673,191. This is a decrease from the production of 1907 of 663,975 tons in quantity and \$1,006,710 in value. The output was the smallest in any year, except one, since 1903. In spite of the fact that the decrease in production was due to business depression, the average price per ton showed an increase over 1907. The coal mines of the State gave employment to an average of 5415 men in 1908, a decrease from 5945 in 1907. All the important mines of the State are operated on the eight-hour day. The labor difficulties of 1908 were limited to a strike of 226 men at the Wilkeson mines in Pierce county.

This strike began in November, 1907, and had not been officially declared off at the close of 1908. The accidents in the coal mines of Washington during 1908 aggregated 104, of which 25 were fatal. Most of the fatal accidents were of a preventable character. The stone products of the State in 1908 were valued at \$1,367,191, of which granite composed the larger part. In 1907 the value of the product was \$920,254. Other mineral products of the State are coal products, lime, coke, gold, sand and gravel, copper, and silver; also unclassified, antimony, arsenic, lead, mineral waters, platinum, tungsten and zinc. The value of the mineral products of the State in the year 1908 was \$11,610,224 as compared with a value of the product in 1907 of \$11,617,706.

The production of gold in 1909 was estimated by the Director of the Mint at 18,282 fine ounces, with a value of \$377,900. The silver production was estimated at 73,500 fine ounces, valued at \$38,200.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 417,000 bushels, valued at \$359,000 from 15,000 acres; winter wheat, 20,124,000 bushels, valued at \$18,715,000 from 780,000 acres; spring wheat, 15,656,000 bushels, valued at \$14,560,000 from 760,000 acres; oats, 9,898,000 bushels, valued at \$4,751,000 from 202,000 acres; barley, 7,189,000 bushels, valued at \$4,601,000 from 182,000 acres; rye, 84,000 bushels, valued at \$79,000 from 4000 acres; potatoes, 6,970,000 bushels, valued at \$3,276,000 from 41,000 acres; hay, 798,000 tons, valued at \$11,172,000 from 390,000 acres. The agricultural development in the State has been greatly stimulated in recent years by several large irrigation projects undertaken by the United States Reclamation Service. (See IRRIGATION.) The greater part of the area thus made available is devoted to the cultivation of fruits. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 330,000; mules, 5000; dairy cows, 205,000; other cattle, 358,000; sheep, 783,000; swine, 183,000. The wool clipped in 1909 was estimated at 5,273,600 pounds.

FISHERIES. The value of the products of the fisheries of the State for the year ending December 31, 1908, was \$3,513,240. Of these the most important in point of value was salmon, of which 57,508,800 pounds were taken, valued at \$1,318,660. Next in point of value were halibut, of which 30,071,500 pounds, valued at \$1,235,760 were taken. Of oysters there were taken 14,807,800 bushels, valued at \$334,560. Clams to the value of \$34,210; hard crabs to the value of \$50,850; shrimp to the value of \$21,840, and cod (to be salted) to the value of \$123,780 were among the other important fish taken. There were 2052 independent fishermen engaged in the fisheries of the State, with 2896 wage-earning fishermen employed. The number of vessels engaged in the fisheries was 153, valued at \$1,153,987.

EDUCATION. The school attendance in 1909 was 205,566. The number of male teachers employed was 1387 and female 5331. The average monthly salary of male teachers was \$78.32 and of female teachers \$60.58. The total expenditures for education during the year was \$8,894,301.

FINANCE. The balance at the end of the fiscal year 1907-8 was \$1,340,318. The income for the fiscal year 1908-9 was \$5,316,887 and the expenditures were \$5,135,724, leaving a balance at the end of the fiscal year 1908-9 of \$1,521,481. The chief sources of revenue were the sales of public lands, State tax, general, military, highway funds, interest on bonds, and redemption bonds. The chief disbursements were for the general fund, the highway fund, the permanent school fund and the current fund. The bonded debt at the end of the fiscal year 1908-9 was \$1,406,024.

POLITICS AND GOVERNMENT. The internal affairs of the State excited unusual and more than local interest. Regular, extra, and extraordinary sessions of the legislature were held. The Ballinger-Pinchot controversy was warmly discussed by the former's home papers as well as by the national press.

The political year opened on January 27 when Samuel G. Cosgrove was inaugurated Governor. A special car brought him from a California sanitarium to Olympia, and immediately upon taking the oath of office he returned to the South and there died March 28. He was succeeded by Lieutenant-Governor M. E. Hay in the capacity of Acting-Governor. This unusual turn of affairs developed an interesting application of the new direct primary law; the elections under it did not even designate Mr. Hay as second choice for Lieutenant-Governor. The first bill introduced and passed by the regular session was the much discussed Ole Hanson Race Track measure. It is as sweeping in its provisions as its prototype of New York State, and makes possession of gambling paraphernalia *prima facie* evidence of the violation of the act. Among other important measures passed were the Local Option bill, the Criminal code and the Pure Seed law. The first is applicable to incorporated towns separately and the balance of the county as a whole; its operation had closed saloons in several towns and counties. The second repealed all existing statutes and enacted one code for all crimes. A hotly contested eight-hour law for women was defeated. See ELECTORAL REFORM.

The regular session ordered the sale of capitol lands for the completion of the new State House at Olympia, and a submission to vote in 1910 of the woman's suffrage question. The extra sessions were called to investigate charges preferred against Insurance Commissioner John H. Shively; he escaped impeachment because of the constitutional provision requiring two-thirds of the Senate vote for conviction. Adjutant-General Ortis Hamilton was found guilty of embezzlement of State funds.

OFFICERS: Governor, M. E. Hay, Republican; Lieutenant-Governor, vacant; Secretary of State, I. M. Howell, Republican; Treasurer, John G. Lewis, Republican; Auditor, C. W. Clausen, Republican; Superintendent of Public Instruction, Henry Dewey, Republican; Attorney-General, W. P. Bell, Republican; Commissioner Public Lands, E. W. Ross, Republican; Commissioner Insurance, J. H. Shively, Republican.

JUDICIARY. Supreme Court: Chief Justice, Frank J. Rudkin; Associate Justices, R. O. Dunbar, H. D. Crow, M. A. Fullerton, W. Mount, M. F. Gose, S. J. Chadwick—all Republicans, except Chadwick; Clerk, C. S. Reinhart.

The State Legislature of 1909 was composed of 39 Republicans and 3 Democrats in the Senate,

WASHINGTON, UNIVERSITY OF. An institution of higher learning at Seattle, Washington, founded in 1862. The students and faculty in 1909 numbered 1785. There were in the library 38,180 volumes. During the year 26 new members were added to the faculty, and a chair of Scandinavian Languages was added to the course of study. The University is supported by the State. The productive funds amount to about \$1,500,000 with a total income of about \$500,000. The president is Thomas F. Kane, Ph. D.

WATER PURIFICATION. At the rate of progress of 1909 all the leading cities of the United States dependent on surface-water as contrasted with deep-seated sources of supply will soon be provided with water-purification works, as has long been true in Great Britain, Germany and some other European countries. The last cities to fall into line will be those which draw water from practically unpolluted mountain sources and those which depend upon large lakes, subject to a minimum of pollution. At the close of 1909, Philadelphia, Wilmington, Washington, Cincinnati, Columbus, Indianapolis, Louisville, St. Louis, Denver, and many other important cities, besides scores of smaller places, were enjoying water that had been purified to a greater or less extent. The Columbus and New Orleans plants combine water softening with coagulation, sedimentation and filtration.

WATER DISINFECTION. Disinfection by means of bleaching powder came prominently to the front in 1909. This agent was used temporarily at Maldstone, England, in 1897, where it was introduced in the water-distributing mains of the city after a typhoid epidemic; also in the reservoirs and in the water-supply of Lincoln, England, after a typhoid epidemic in 1904-5. Electrolytic solutions of sea water or of salt and water, producing the same general effect as bleaching powder, have been used for treating water or sewage, or for general disinfection, in England, France, the United States and Cuba during the past fifteen years. But the first use of bleaching powder as a water disinfectant on a large scale was begun in 1908 and continued in 1909 at the large storage reservoir of the Jersey City Water Supply Co., located at Boonton, N. J., where the water was so treated at the rate of 40,000,000 gallons per day. This water-supply is derived from a large gathering-ground which consists of the headwaters of the Rockaway River. Although this drainage area as a whole is sparsely populated it contains some concentrated population. A contract with Jersey City called for a supply of pure and wholesome water and a court decided that the company had failed in its fulfillment at times, although in a minor degree. The failure pertained to the bacterial contents of the water, and so it was resolved to use a disinfectant to get rid of any possible disease germs. To that end, dissolving and mixing tanks were installed at small expense, and a solution of bleaching powder was admitted to the outlet pipe leading from the reservoir, therein to mix with water and serve as a germicide in its flow to the city, many miles distant. Satisfactory results were obtained at an operating

at Boonton were favorable to a low unit cost. The powder used at Boonton contained about 35 per cent. of available chlorine. When bleaching powder is dissolved in water, various chemical changes take place. The net result of these, so far as water-disinfection is concerned, is that the chlorine liberates nascent oxygen, which is the germicidal agent involved. Satisfactory bactericidal results were obtained at Boonton, when using 5 pounds of bleaching powder per 1,000,000 gallons of water, which gives 0.2 parts of available chlorine per 1,000,000 parts of water.

OZONE. Besides the plant installed at Lindsay, Ontario, in 1908, for disinfecting water by ozone, one was reported as having been built at Ann Harbor, Michigan, for the Ann Harbor Water Co., in 1909, and one is contracted for by the Baltimore County Water & Electric Co., (Md.).

WATER-WORKS. The two most notable enlargements of all old works in progress in 1909 were designed to give large additional supplies to New York and Los Angeles, from the Catskill and Sierra Nevada mountains, respectively. See **AQUEDUCTS.**

The progress and results of establishing a universal metre system at Cleveland, Ohio, were summarized in the report of the water department of that city for 1908, published in 1909. In 1901, with about 6 per cent. of the consumers' taps metered, the water consumption was 169 gallons per capita. In 1902, with about 20 per cent. metered, by the close of the year only a slight reduction over 1901 was noted; but in 1903, with 43 per cent. of the taps metered, the consumption fell to 142 gallons, while in 1908, with 94 per cent. metered, the per capita consumption was only 100 gallons. This fall in the unit rate of consumption was so great that much less water was used in 1908 than in 1901, notwithstanding a heavy increase in population.

FRANCE, BELGIUM AND SWITZERLAND. Late in 1909 there appeared a revision of *Annuaire Statistique et Descriptif du Distribution d'Eau de France*, etc. This book, which first appeared in 1903, is a water-works manual for cities of 5000 inhabitants and upwards in French-speaking countries, including the colonies of France. The latest issue shows that on January 1, 1909, there were in France 643 cities of 5000 population or more. Of these 504 had a general public water-supply, but of the latter number 25 cities had no house-to-house supply, the distribution stopping with public fountains. In Belgium only 95 of the 261 cities of 5000 and upwards had public water-supply. In Switzerland all municipalities of 5000 and more, 43 in number, had water-works. Only one of the Belgian and none of the Swiss cities relied on fountains alone for water distribution. About half of the water-works of France take their supply from springs and about a fourth from wells and underground galleries, thus making some three-fourths that use underground rather than surface sources. Of 145 river supplies in France 73 are filtered; 2 are treated with ozone; 36 have a double supply and only 34 reported as using "raw" river water. The per capita

water consumption in 1908 averaged 50 gallons in France and 24 in Belgium (Switzerland not given). Probably the average in the United States, were figures available, would have been at least 100 gallons. Ownership of the works was divided as follows: France, 317 public to 162 private works with fountains only evidently omitted; Belgium, 69 to 26; Switzerland, 39 to 4. By percentages the figures for public or municipal ownership were: France, 65 per cent.; Belgium, 73 per cent.; Switzerland, 90 per cent. See also WATER PURIFICATION.

WATERWAYS, INTERNAL. The subject of development and improvement of the great internal waterway systems of the United States continued to receive a great deal of attention in 1909 as it did in 1908. Two important reports dealing with the subject were completed and made public during the year. The first was the preliminary report of the United States National Waterways Commission, composed of twelve members of Senate and House of Representatives, with Senator Burton as chairman, created by Act of Congress of March 3, 1909. This commission succeeded the Internal Waterways Commission, which was appointed in 1907 by an executive act of President Roosevelt. Congress in 1909 refused to continue this Commission, which was composed of Senators, members of the House of Representatives, engineers and others, and substituted for it the National Waterways Commission, composed entirely of Senators, and members of the House of Representatives. The Commission held numerous meetings during the year, both in the United States and Europe. Seven of the twelve members made a tour for the examination of European waterways from August to October, 1909. In addition, a majority of the members of the Commission examined the Mississippi River from St. Paul to New Orleans in November, and some of them in the same month inspected the Missouri River from Kansas City to its mouth and the Illinois River from its lower portion to the head of navigation.

The Commission separately considered in its conclusions the following distinct topics: First, the reasons for decline in inland waterway transportation, together with suggested remedies therefore and the relation between waterway and railway transportation; second, canals, including especially the advisability and practical value of canals for deep vessels; third, the necessary steps to be taken before the adoption of projects for the improvement of rivers and harbors and the method of making appropriations therefor; fourth, the proper division between appropriations by the Federal government on the one hand, and the States, minor political divisions, and individuals, on the other; fifth, the relation of waterway improvements to bank protection, flood, and drought prevention, irrigation and drainage; sixth, the most desirable policy relating to harbors, including the ownership and control of wharves and docks; seventh, the relation of waterway improvements to water power; eighth, methods for the improvement of rivers including the construction of locks and dams; ninth, comparison of European waterways with those of the United States, including the investigation of European and American transportation routes both by land and water. This report was designed as a preliminary to the general

report which the Commission is to make at the conclusion of its investigations.

The special Board of Engineers, constituted by a section of the River and Harbor act, approved March 2, 1907, made its report on March 20, 1909. The membership of the Board includes Colonel W. H. Bixby, Corps of Engineers, President of the Mississippi River Commission; Lieutenant-Colonel C. McD. Townsend, Corps of Engineers; Lieutenant-Colonel J. G. Warren, Corps of Engineers; Mr. Henry B. Richardson, member of the Mississippi River Commission, and Mr. Homer P. Ritter, Assistant, United States Coast and Geodetic Survey. In this report the chief consideration was given to various methods of securing the 14-foot channel at the mouth of the Mississippi River, and all the methods proposed for securing this result were considered as practical from an engineering standpoint, except the method of improvement by means of storage reservoirs. The Chief of Engineers of the United States army approved the opinions expressed with regard to the methods of improvement considered, with the exception that he believed that it would not be practicable to obtain a minimum depth of 14 feet between St. Louis and Cairo by means of locks and movable dams. He is not prepared to recommend that it is practicable from an engineering standpoint to obtain a 14-foot depth at low water in the section from St. Louis to the mouth of the Ohio River by any method of open-river improvement. The special Board concludes that the most practicable means of obtaining and maintaining a navigable channel of 14 feet depth from St. Louis to the mouth of the Mississippi River is by the combined method of draining and regularization works in the open river. The estimated cost of this plan of improvement is \$128,600,000, with \$6,500,000 annually for maintenance after completion of the work. The Board of Engineers reports that it is not desirable to construct a navigable channel 14 feet in depth from St. Louis to the mouth of the Mississippi River or from Chicago to the mouth of the Mississippi River. It declares that the present demands of commerce between St. Louis and the mouth of the Mississippi River are adequately met by the existing projects having for their objects, to obtain and maintain an 8-foot channel from St. Louis to the mouth of the Ohio and a channel of not less than 9 feet in depth below the mouth of the Ohio. The Board believes that an 8-foot channel from Chicago to St. Louis, corresponding to the present 8-foot project from St. Louis to Cairo is the least that will adequately meet the demands of commerce, and believes such a waterway would be desirable provided its cost would be reasonable. It is stated that the present and prospective demands of commerce between Chicago and the Gulf will be adequately served by a through channel 9 feet in depth, which may be obtained without violent changes of existing methods of improvement.

The fourth annual convention of the Deep Waterway Association was held at New Orleans, covering a session of three days, beginning October 30, 1909. The opening of the convention was timed to take place upon the arrival of the Presidential party from St. Louis, comprising 22 boats and bearing, in addition to President Taft and his party, United States Senators, members of Congress, governors, for-

fact that such a project had been reported against by the Commission of Engineers as is noted above. Resolutions were adopted making the adoption of the policy of proceeding both promptly and on broad lines in the development of interior waterways.

In the election of November 2, the people of Illinois voted for an expenditure of \$20,000,000 of State money in the building of a water power waterway project from Joliet on the Des Plaines River to Utica on the Illinois River and a special session was called by Governor Deneen for the purpose of enacting the necessary laws for the expenditure of this money. See ILLINOIS.

The National Rivers and Harbors Congress met in its annual session at Washington on December 8. President Taft opened the session with an address in which he outlined definitely the extent to which he thinks it is desirable and to which he believes congress will go in carrying out the comprehensive plans for the general improvement of the waterways of the country. He declared his belief that bonds should be issued for such a purpose and that they should not be primarily issued for these improvements, but only to carry on work which has been undertaken by direct appropriations and which could not be finished on account of reduced revenue. The President declared his belief that the work of general waterway improvements should be confined for the present to the recommendations of the army engineers on the Mississippi, Missouri and the Ohio rivers between St. Paul, St. Louis, Pittsburgh, Cairo, New Orleans and other cities, which, in his opinion, would benefit a larger section of the country than any other project suggested. He said, referring to the advocates of a 14-foot channel in the Mississippi, that the recommendations of the engineers for a 9-foot channel should be followed up and when this was obtained, a 14-foot channel might be secured. Congress adjourned on December 10, after adopting resolutions reciting that the United States is alone of the great nations of the world backward in developing its waterways and declaring that the present Congress can do much by appropriate legislation. The resolutions urged the passage by Congress of a Rivers and Harbors Bill, appropriating at least \$50,000,000 for the purpose of carrying forward under a continuing contract system such rivers and harbors projects as have been heretofore entered upon or finally approved and as are of such a character as to surely fit into and carry into effect any larger comprehensive and connected waterway system that may be subsequently adopted. The annual appropriation for ten years of an equal sum was recommended. The resolutions also advocated the creation of a department of public works with a cabinet officer at its head, each department to have charge of and control over all public works of this and a similar character. For mention of the tour of President Taft down the Mississippi River and his address relating to the proper development of waterways, see UNITED STATES, section Administration.

WEI-HAI-WEI. A territory on the north coast of Shantung Province, China, leased to

235 square miles; population, including the 4000 inhabitants of Liu Kung, about 150,000. Beyond the limits of the British territory is an area of about 1500 square miles, in which Great Britain has certain special rights as the exercise of measures for the defense of the territory, the acquisition of sites for water supply, etc. The native town of Weihaiwei has about 2000 inhabitants. Commerce is small. The territory was acquired for its strategic value, which has been comparatively little since Russia lost Port Arthur. At present its chief use to Great Britain is as a rendezvous and health resort for the China squadron. Revenue and expenditure in dollars (silver) in the year 1907-8 amounted to 80,331 and 173,340 respectively; both in that year and in 1908-9 the grant-in-aid was £10,000.

WEIL, HENRI. A German-French classical scholar, died in November, 1909. He was born at Frankfort-on-the-Main in 1818, and studied at Bonn, Berlin, and Leipzig. In 1847 he was made an associate professor at Paris, whence two years later he was called to Besançon. In 1876 he went to Paris as a professor of Greek at the École Normale Supérieure and the École des Hautes Études, resigning both positions in 1891. Among his works are *De l'ordre des mots dans les langues anciennes, comparées aux langues modernes* (1844; 3d ed., 1879), his masterpiece; and editions of *Æschylus*, with a Latin commentary (2 vols. 1861-67; 2d ed. 1884); seven tragedies of *Euripides*, with a French commentary (1868; 2d ed. 1879); *Les harangues de Démosthène* (1873; 2d ed. 1881); *Les plaidoyers politiques de Démosthène* (1877-86); *Études sur le drame antique* (1897); and *Études de littérature et de rythmique grecques* (1902).

WELLESLEY COLLEGE. An institution for the higher education of women at Wellesley, Mass., founded in 1875. The attendance in 1909-10 was 1319. The library contained 65,238 volumes. The faculty numbered 106 officers of instruction, and there were 31 graduate students in residence. A new gymnasium called the Mary Hemenway Hall, in charge of Amy Morris Homans, A. M., and a new dormitory, Shafer Hall, were opened in the autumn of 1909. The college offers to graduates a fellowship of \$1000 per annum and 30 scholarships of \$175 each, and to undergraduates about 50 other scholarships. A new library to cost \$125,000, given by Andrew Carnegie, approached completion. The president is Miss Caroline Hazard.

WERNER, REINHOLD VON. A German vice-admiral and writer, died in March, 1909. He was born near Magdeburg in Prussia in 1825, and after experience in the merchant marine, in the course of which he made numerous voyages to the East Indies, he became, in 1849, an officer in the newly organized fleet of the German nation. In 1852 he entered the Prussian service, and became lieutenant-captain in 1856, took part in the Far East expedition of 1859-62 and fought with distinction at Jasmund, in 1864, during the war with Denmark. He took part also in the Seven Weeks' War, and in 1873 was detailed at the head of a squadron of five ships off the coast of Spain where the revolu-

tionary movement was then in progress. He became rear-admiral in 1875 and was retired in 1878. In 1898 he was nominated to be vice-admiral, and in 1901 he was ennobled. Of his voluminous writings, the best known are: *Die preussische Expedition nach China, Japan und Siam* (1863); *Die Schule des Seewesens* (1866); *Das Buch von der deutschen Flotte* (1868); *Seebilder* (1876); *Erinnerungen und Bilder aus dem Seeleben* (1881); *Berühmte Seeleute* (1882-84); *Drei Monate an der Sklavenküste* (1885); *Dirk Mallinga* (1888); *Bilder aus der deutschen Seekriegsgeschichte von Germanicus bis Kaiser Wilhelm II.* (1898). In 1864 he founded at Hamburg the *Hansa*, a periodical devoted to seamanship and the life-saving service.

WESLEYAN METHODIST CONNECTION IN THE UNITED STATES. An evangelical denomination of Methodist principles, founded in 1843 by members of the Methodist Episcopal Church who strongly opposed slavery. The denomination had in 1909 19,485 communicants, 605 churches, and 570 ministers. In the 487 Sunday schools were enrolled 18,783 scholars and 1913 teachers. Among the educational institutions which are under the control of the denomination are Houghton Seminary, at Houghton, N. Y., and Miltonvale College at Miltonvale, Kansas. The Indiana Conference also has a school under its own control, but this will ultimately come under denominational control and the same may be said of the preparatory school located at Central, S. C. The official paper is the *Wesleyan Methodist*, published at Syracuse. The highest authority of the church is the quadrennial General Conference.

WESLEYAN UNIVERSITY. An institution of higher learning at Middletown, Conn., founded in 1831. The attendance in 1909 was 342 students with 42 members of the faculty. There were in the library 82,000 volumes. During the year there were received in gifts \$30,000. In 1909 co-education was abolished by the trustees. Professor William Arnold Shanklin, Ph. D., LL. D. was installed as president of the University. The total productive funds amount to about \$1,520,000 and the income to about \$135,000.

WEST AFRICA. See BRITISH WEST AFRICA, FRENCH WEST AFRICA and ENTOMOLOGY.

WESTERN AUSTRALIA. A state of the Australian Commonwealth. Area, 975,920 square miles. Estimated population (June 30, 1909), 275,267. Capital, Perth, with a population, including suburbs, of about 54,000. The executive power is exercised by a governor, appointed by the Crown and assisted by a responsible ministry. The Parliament consists of the Legislative Council (30 members, elected for six years) and the Legislative Assembly (50 members, elected for three years). Both men and women vote. The Governor in 1909 was Sir Gerald Strickland, the Premier and Treasurer, Newton James Moore. (For statistics and other details, see AUSTRALIA.) Mr. Moore, the Premier, in a speech on July 20, declared that rigid economy in the administration would be necessary to effect the decrease from the customs. Four hundred miles more of railway were to be built, including the line from Port Headland to the Marble Bay. As a result of advances to the Agricultural Bank, 240,000 acres had been

cleared for cultivation in 1909. The population was steadily increasing.

WESTERN RESERVE UNIVERSITY. An institution of higher learning at Cleveland, Ohio, founded in 1826. The attendance in 1909 numbered 1011 students, with 214 instructors and officers. An additional fund of \$500,000 was completed during the year. During 1909 the H. K. Cushing Laboratory of experimental medicine was opened; the Morley Laboratory of chemistry, and geology was brought to completion, and the Amasa Stone memorial chapel was in course of construction. The requirements for admission to the medical school, already including three years of college work, were raised to include the requirement of a degree for unconditioned entrance. The productive funds of the University amount to about \$2,300,000 and the income to about \$535,000. The president is Charles F. Thwing, D. D.

WEST VIRGINIA. One of the South Atlantic Division of the United States. Its area is 24,170 square miles. The population in 1909, according to a Federal estimate made in that year, was 1,135,206.

MINERAL PRODUCTION. Owing to conditions more favorable for the cheap production of coal in West Virginia, the percentage of decrease in that State during 1908 was less than in Ohio, Pennsylvania, Maryland and Alabama. The total production in 1908 was 41,897,843 short tons with a spot value of \$40,009,064. This was a decrease over the production of 1907 of 6,193,740 short tons in quantity and \$7,837,576 in value. Another reason for a smaller decrease than in other States was the fact that there was no suspension of operations pending the adjustment of the wage scale as there was in the adjoining States. The decreases of 1908 were particularly noticeable in the important coke-making counties of Fayette and McDowell. The coal mines of the State in 1908 gave employment to 56,861 men. The majority of the mines of the State are carried on under "open-shop" or non-union rules, and the 10-hour day prevails in the majority of cases. In 1908 there were 313 fatalities in the coal mines of the State as compared with 729 in 1907. The largest single disaster was a dust explosion in the Lick Branch Mine of the Pocahontas Consolidated Collieries Company in which 50 men were said to have lost their lives. Another important development toward the increased production of coal in the State is the completion of the Virginian Railway from Deepwater on Kanawha River to Sewells Point near Norfolk. This important outlet for West Virginia coal and the only railway built from the coal fields to the seaboard was completed in the spring of 1909. Another important railroad constructed was the Coal River Railroad from St. Albans into the rich coal fields of the Coal River valley. This road has been purchased by the Chesapeake and Ohio Railway and will be an important feeder to that line. West Virginia ranks second among the States in the quantity of coke produced, although it is led by Alabama in the value of its product. The production of 1907 amounted to 2,637,123 short tons, valued at \$5,267,054 against 4,112,896 short tons, valued at \$9,717,130 in 1907. The decrease in 1908 over 1907 amounted to 35.88 per cent. in quantity and 45.8 per cent. in value. The average price per ton de-

clined from \$2.36 to \$2. The State has important manufactures of clay products. These in 1908 were produced to the value of \$3,261,756 as compared with a value of \$3,640,387 in 1907. Other important mineral products are building stone, coal products, lime, glass-sand, sand and gravel, salt, and mineral waters, also abrasive materials, bromine, Portland cement, iron ores and zinc. The total value of the mineral products of the State in 1908 was \$77,465,737 as compared with a value of the product in 1907 of \$92,487,960.

The State did not share in the general decline in the production of petroleum in 1909 on account of the active developments in Roane, Harrison and Lincoln counties, especially at Shinnston pool, where a gusher estimated at 4000 barrels a day was brought in on December 8, which did much to stimulate well drilling in that region.

The production of coal in 1909 was nearly equal to that of 1907 and surpassed that of 1908. An epoch-making incident in the development of the industry was the completion in 1909 of the Virginian Railway, the first transportation line in the United States constructed from the coal fields to the seaboard. The main purpose of this new line is to furnish an additional outlet for the coals of the Kanawha, the New River and the Pocahontas region. During the months of 1909 when it was in operation it carried nearly 1,500,000 tons of coal and it is expected that within two years it will furnish transportation for nearly 5,000,000 tons a year. The production suffered somewhat during the year from a shortage of labor attributed to the exodus of miners to Europe which took place during the business depression of 1908.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 27,632,000 bushels, valued at \$20,448,000 from 880,000 acres; winter wheat, 4,810,000 bushels, valued at \$5,435,000 from 370,000 acres; oats, 2,156,000 bushels, valued at \$1,164,000 from 98,000 acres; rye, 148,000 bushels, valued at \$133,000 from 11,000 acres; buckwheat, 499,000 bushels, valued at \$379,000 from 22,000 acres; potatoes, 3,822,000 bushels, valued at \$2,599,000 from 39,000 acres; hay, 844,000 tons, valued at \$11,225,000 from 675,000 acres; tobacco, 12,600,000 pounds, valued at \$1,663,200 from 14,400 acres. The farm animals on January 1, 1910, numbered as follows: Horses, 197,000; mules, 12,000; dairy cows, 247,000; other cattle, 511,000; sheep, 709,000; swine, 338,000. The wool clipped in the State in 1909 was estimated at 2,538,000 pounds.

EDUCATION. The school attendance in 1909 was 188,661. There were 4054 male teachers and 4508 female. The average salary of the teachers was \$40.19. The year 1909 was notable in the educational history of the State on account of the increased interest aroused in education by means of campaigns conducted in many counties. Rural high schools and better and more attractive school buildings have been the special objects towards which these campaigns have been directed. About 40,000 volumes have been added during the year to the small libraries in rural schools. Two new divisions were created in the State Department of schools, the Division of High

Schools and the Division of Examinations and Institutes. The expenditures for all departments of education for the year amounted to \$4,360,048.

FINANCE. The balance at the end of the fiscal year 1907-8 was \$1,688,157. The income for the fiscal year 1908-9 was \$5,028,193 and the expenditures were \$4,473,432, leaving a balance at the close of the fiscal year 1908-9 of \$2,240,918. The chief sources of revenue were direct tax, \$5 on a thousand, and the license tax. The chief disbursements were for the State officials and clerks, the militia and 21 State institutions, including hospitals, normal schools, asylums, the State university, etc. The above receipts and disbursements included an item of \$1,810,900, which was for the tax on public service corporations paid into the treasury and then refunded to counties, districts and municipalities.

POLITICS AND GOVERNMENT. The legislature convened its regular session on January 14. Governor Dawson in his message devoted considerable space to the matter of revenue for the State. The constitution prohibits the creating of debt and the Governor pointed out that the business of the State demanded more money than the present revenues afford. He recommended that coal, oil and gas produced in the State be taxed and that the inheritance tax laws be amended so as to produce revenues from this source. He suggested that the tax be regulated by the gross earnings from production. He discussed the conservation of natural resources, public health, pollution of rivers, and education. He indorsed the increased efficiency of the mine inspection department and the prohibition of the taking into any mine of intoxicating liquors. He recommended the passing of a local option law and the submission of an amendment prohibiting traffic in intoxicating liquors. For the first time in fifty years the city of Charleston became wholly "dry" on July 1, 1909. By the refusal of the City Council to grant the renewal of liquor licenses, 142 saloons were closed.

OTHER EVENTS. On January 12 an explosion and fire in the Lick Branch Colliery of the Pocahontas Consolidated Coal Company at Huntington caused the death of 105 men. The explosion is believed to have been caused by the use of open lamps by new miners who were employed to take the place of the 51 men who were killed in an explosion in the same opening on December 28, 1908. The legislature ordered a rigid investigation. The mine was inspected by the State Inspectors after the first accident and was pronounced in perfect condition before the owners were permitted to resume work.

OFFICERS: Governor, Wm. E. Glasscock; Secretary of State, Stuart F. Reed; Treasurer, E. L. Long; Auditor, John S. Darst; Attorney-General, Wm. G. Conley; Superintendent of Schools, M. P. Shawkey; Com. of Agriculture, J. Millan—all Republicans.

JUDICIARY. Supreme Court of Appeals: President, Henry Brannon, Rep.; Associate Justices, George Poffenbarger, Rep.; L. Judson Williams, Rep.; Ira E. Robinson, Rep.; Clerk, W. B. Mathews, Rep.

The State Legislature of 1909 was composed of 24 Republicans and 6 Democrats in the Senate, and 60 Republicans and 26 Democrats in the House. The State representatives in

Congress will be found in the section *Congress of the article UNITED STATES.*

WHARTON, JOSEPH. An American iron-master and philanthropist, died January 11, 1909. He was born in Philadelphia in 1823. He was educated by private tutors. He was engaged in various mercantile enterprises until 1853, when he became manager of the Lehigh Zinc Co. For this company he built, in 1860, the first successful spelter works in the United States. He purchased, in 1873, the Gap Nickel Mines in Lancaster county, Pa., and established at Camden, N. J., the first successful cobalt and nickel works in America. Mr. Wharton was the largest individual pig iron manufacturer in the United States. He was president and director of the Andover Iron Co., and a director of the Bethlehem Steel Works and other large corporations. He founded the Wharton School of Finance and Commerce in the University of Pennsylvania, endowed chairs in Swarthmore College, and was identified with other institutions of learning. He wrote many treatises on the policy of protection, and other economic subjects.

WHEAT. The wheat season of 1908-09 was characterized by unfavorable weather conditions in the fall and early spring which resulted in an unsatisfactory growth of the young crop. From all parts of the winter wheat belt the crop was reported as short, thin, poorly rooted and as not stooling timely. The prospects for a good yield were not encouraging at any time during the early part of the season. In the spring 7.2 per cent. of the winter wheat area was plowed up for oats and other spring crops. Favorable weather, however, during the latter part of the growing season brought out the remarkable recuperative powers of the wheat plant, the prospects for a good crop brightened rapidly, and a much better yield than had at first been expected was finally secured. In fact the effect of the good weather largely discounted the reduced acreage as compared with the year before. In many parts of Europe a dry fall, followed by a severe winter and a late and cold spring, interfered greatly with the growth of winter wheat and other crops sown in the fall. In Germany about 10 per cent. of the area sown to winter wheat was abandoned the following spring. The total winter wheat production of Europe, however, owing to more favorable weather during the latter part of the growing season, was higher than had at first been anticipated, but in many localities it was not quite up to normal.

The year's crop in the United States, according to statistics published by the Department of Agriculture, was 446,366,000 bushels of winter wheat on 28,330,000 acres and 290,823,000 bushels of spring wheat on 18,393,000 acres. The total area was 46,723,000 acres and the total production 737,189,000 bushels. The average yield per acre was 15.8 bushels for each type of wheat. The production of 1909 was second only to the record crop of 1901 and slightly above the heavy crop of 1906. However, owing to the good price of wheat at this time the total value of the year's crop is estimated at about \$725,000,000 on the farm, which exceeds all previous values by a considerable sum. As compared with the 5-year average it is greater by more than 34 per cent. In comparison with the previous year the winter wheat area in 1909 was about 2,000,000 acres

smaller and the production almost 9,000,000 bushels larger, while the area in spring wheat in 1909 was a little over 1,000,000 acres and the production over 64,000,000 bushels larger than in 1908.

The following table shows the acreage, production and farm value of the wheat crop in some of the leading wheat-growing States for 1909:

States	Acreage	Winter Wheat Production	Value
Minnesota.....			
North Dakota...			
Kansas.....	5,895,000	85,478,000	\$82,069,000
Nebraska.....	2,350,000	45,590,000	40,575,000
South Dakota...			
Washington	780,000	20,124,000	18,715,000
Indiana.....	2,165,000	33,124,000	36,436,000
Illinois.....	1,810,000	31,494,000	32,764,000
Missouri.....	1,943,000	28,562,000	29,986,000
Pennsylvania....	1,545,000	26,265,000	28,622,000
Ohio.....	1,480,000	23,532,000	26,054,000
Oregon.....	535,000	11,235,000	10,449,000

States	Acreage	Spring Wheat Production	Value
Minnesota.....	5,600,000	94,080,000	\$90,217,000
North Dakota...	6,625,000	90,762,000	83,501,000
Kansas.....	150,000	1,725,000	1,658,000
Nebraska.....	290,000	4,060,000	2,613,000
South Dakota...	3,375,000	47,588,000	42,829,000
Washington	760,000	15,656,000	14,560,000
Indiana.....			
Illinois.....			
Missouri.....			
Pennsylvania....			
Ohio.....			
Oregon.....	275,000	5,142,000	4,782,000

It will be noticed that Minnesota and North Dakota lead in the total production of spring wheat, and Kansas and Nebraska in the total yield of winter wheat. In 1908 Indiana held second place in winter wheat production and Nebraska third.

Broomhall, the English authority, places the world's wheat production for 1909 at 3,346,968,000 bushels, an increase of more than 9 per cent. over 1908 and of 3½ per cent. over 1906, the previous record year. This high total is due to the good yields secured in every important wheat-growing country of the world. All these countries except Austria-Hungary, Germany, and Spain, showed an increased yield. This same authority points out that Russia's production shows an increase of about 69,000,000 bushels over last year, and that Canada has produced 24,000,000 bushels, and Alberta, 5,000,000 bushels record. England's harvest of 64,000,000 bushels is the best since 1899. The total Canadian yield, as estimated by Canadian officials, is 188,386,000 bushels, and the rate of yield 21.13 bushels per acre. The growing importance of the western Canadian wheat region is indicated by the fact that this year Manitoba produced 45,000,000 bushels, Saskatchewan, 70,000,000 bushels, and Alberta, 5,000,000 bushels of wheat. The French crop amounted to approximately 360,200,000 bushels which was grown on 16,236,000 acres.

WHISKEY. See FOOD AND NUTRITION, and LIQUORS, FERMENTED AND DISTILLED.

WHITEAVES, JOSEPH FREDERICK. An English palaeontologist, died August 8, 1909. He was born at Oxford, England, in 1835. In early life he began the study of Jurassic fossils of England. In 1861 he removed to Canada and in 1865 became Curator of the Museum of

and zoölogy of Canada.

WICKERSHAM, GEORGE W. An American Cabinet officer and Attorney-General in President Taft's Cabinet. He was born in Philadelphia. After studying two years at Lehigh University for the profession of civil engineer he changed his mind and resolved to train himself for a business career. He again changed his purpose and entered the law department of the University of Pennsylvania, from which he graduated in 1880. He began to practice in Philadelphia, but in 1882 removed to New York and became connected with the firm of Strong and Cadwalader. For twenty years he was a partner in this firm and became one of the most eminent lawyers in New York City. Mr. Wickersham was active in philanthropic affairs in New York City and was for years vice-president of the Association for Improving the Condition of the Poor.

WIGGINS, BENJAMIN LAWTON. An American educator, died June 14, 1909. He was born at Sand Ridge, S. C., in 1861, and graduated from the University of the South in 1882. After two years' post-graduate work at Johns Hopkins University he returned to the University of the South as associate professor of Greek, becoming later full professor. In 1893 he was elected vice-chancellor of the institution.

WILDENBRUCH, ERNEST VON. A German dramatic poet and novelist, died January 15, 1909. He was born at Beirut, Syria, in 1845. For 23 years he was employed in the German Foreign Office, and at the same time, wrote copiously. In 1897 he became privy councillor of legation. The most successful of his earlier dramas were *Väter und Söhne* (1882); *Der Mennonite* (1882) and *Harold* (1882). A series of historical plays began with *Die Karolinger* (1882). *Die Quitzous* (1888) was a Hohenzollern play which was remarkably successful, and brought Wildenbruch into close personal relationship with the Kaiser. Following this came *Der Neue Herr* (1891); *Heinrich und Heinrichs Geschlecht* (1895); *Willehahn* (1897); *Die Tochter der Erasmus* (1900); *König Laurin* (1902). Wildenbruch's novels and short stories show great originality. Among them are *Der Meister von Tanagra* (1880); *Der Astronom* (1887); *Tiefe Wasser* (1898), and *Semiramis* (1904). Among his *Lieder und Gesänge* (1877) and *Dichtungen und Balladen* (1884) are many which became widely popular.

WILLAMETTE RIVER BRIDGE. See BRIDGES.

WILLIAMS COLLEGE. An institution of higher learning at Williamstown, Mass., founded in 1793. The attendance in 1909 was 528, with 55 members of the faculty. About 50 per cent. of the students are from New York. There were in the library 66,200 volumes. Among the changes in the faculty were the retirement of Professor L. W. Spring of the English Department, and Professor J. H. Hewitt in the Greek Department. Gifts and endowments were received during the year to the amount of \$158,834. The endowment of the college is about \$1,600,000 and the annual income about \$175,000. The president is Henry A. Garfield.

many years preceding many of that company, which controls the Wilson steamship lines. Outside of his business interests Mr. Wilson was chiefly famous as having been the host of King Edward, then Prince of Wales, at the time of the famous "Tranby-Croft scandal" in 1890.

WILSON, AUGUSTA JANE (EVANS). An American author, died May 9, 1909. She was born in Columbus, Ga., in 1835. Her first novel, *Inez*, was published in 1856, and this was followed by *Beulah* (1859); *Macaria* (1864); *St. Elmo* (1866); *Vashti*, (1869); *Infelice* (1875); *At the Mercy of Tiberius* (1887); *A Speckled Bird* (1902); and *Devota* (1907). These novels, turgid and melodramatic, and with little literary merit, were written with considerable dramatic skill, and, especially the earlier ones, achieved, for the days in which they were published, a remarkably large circulation. *St. Elmo* and *Vashti*, indeed, attained almost the dimensions of a national epidemic. Miss Evans married, in 1868, Dr. M. L. Wilson, of Mobile, Ala.

WILSON, JAMES. An American public official, Secretary of Agriculture in President Taft's Cabinet. He was born in Ayrshire, Scotland, in 1835, and in 1852 came, with his parents, to the United States, settling in Connecticut. In 1855 he went to Tama county, Iowa. He received his education in the public schools of Iowa and at Iowa College. In 1861 he engaged in farming. He was a member of the 12th, 13th and 14th Assemblies of Iowa, and from 1877-83 was a member of the Iowa State Railway Commission. He was elected to Congress from 1873 to 1877 and from 1883 to 1885. From 1890 to 1897 he was professor of agriculture in the Iowa Agricultural College. He was appointed by President McKinley Secretary of Agriculture in 1897, and held that office during President Roosevelt's administrations. He, with the exception of Secretary Meyer, was the only Cabinet officer of President Roosevelt's administration retained by President Taft. Secretary Wilson has served a longer period of time in the Cabinet than any other Cabinet official in the history of the government.

WINDWARD ISLANDS. The southern group of the West India islands, belonging to Great Britain and including Barbados (a separate colony), St. Lucia, St. Vincent, Grenada (qq. v.), the Grenadines, and Tobago (see TRINIDAD). The Government of the Windward Islands is composed of the three colonies of Grenada (the seat of government), St. Vincent, and St. Lucia, with their dependencies, the Grenadines being divided between Grenada and St. Vincent. Each colony maintains its separate institution; there is no general legislative council, and no common tariff or treasury. Each is under an administration subordinate to the Governor (1909, Sir James Hayes Sadler). The St. Vincent Legislative Council in July voted an annual contribution of about one per cent. of the colony's revenue to the Imperial Treasury for the support of the navy, as an expression of gratitude for Imperial protection and of loyalty to the King.

WINE. See LIQUORS, FERMENTED AND DISTILLED.

WIRELESS TELEGRAPHY AND TELEPHONY. The practical efficacy of wireless communication was forcibly shown early in 1909, when the general call of distress from the severely injured steamer *Republic* was detected by the *Baltic*, then seventy miles away, and a disastrous loss of life prevented by the prompt assistance rendered. This event proved a great stimulus to the use of wireless equipment on shipboard. Exclusive of naval equipment there are now nearly 1000 shore stations and equipped vessels operating in American waters.

Advances in telegraph sending apparatus employing arcs and high frequency alternators to produce sustained oscillations in the antennæ have considerably increased the radiating power. In group frequency sending outfits great improvement has resulted from the excitation of the antennæ from special 500-cycle alternators through step-up-high-voltage transformers in place of the usual 60-cycle circuit connections. The signals produced in the receiving telephone by this system have a pitch of 500 cycles per second, to which the ear is highly sensitive. By this arrangement the range of effective transmission is considerably increased.

As a receiving device the string galvanometer, whose vibrations are photographically recorded on a moving strip of sensitized paper, has proved very effective in increasing the speed of operation.

Great success has attended the experiments of Messrs. Bellini and Tosi, who have devised a directive system employing two aërials set at right angles in connection with a radiogoniometre in the station. In both sending and receiving they have been able to cut off all radiation except that in a very small angle. Much work has been done to reduce certain elements of wireless communication to an accurate scientific basis. Precise methods of wave-length and frequency measurement have been introduced and have proven very effective in reducing interference. Practical methods of calculating the frequencies of antennæ with primary and secondary paths have been worked out.

The French government has begun the installation of a military station in connection with the Eiffel tower. The equipment is to have a capacity of 100 horse-power and the antennæ will reach to the great height of 985 feet. It is expected that very long transmission distances may be secured with this station. In addition the French government is engaged in the establishment of a complete system of wireless stations covering the entire country, which will be operated in connection with its postal service.

Wireless telephony has not emerged from the state of preliminary experimentation. Experiments have been conducted by the French navy with apparatus containing a number of enclosed arcs connected in series and burning a special form of electrode. Official tests on the Mediterranean were successful at a distance of 104 miles between stations. Majorana, an Italian experimenter, has made a very effective combination of a new type of transmitter known as the hydraulic microphone with a bolometer or an audion as a receiver. With this equipment successful transmission was secured from Rome to Sicily, a distance of 250 miles. See UNITED STATES, section Navy.

WISCONSIN. One of the North Central Division of the United States. Its area is 56,066 square miles. The population in 1909, according to a Federal estimate made in that year was, 2,356,874.

MINERAL PRODUCTION. The State is not notable for its mineral productions, and the most valuable single product is stone. The products of stone in 1908 were valued at \$2,850,920, as compared with \$2,492,141 in 1907. The State is a large producer of mineral water, and in 1908 there were produced 6,084,571 gallons, valued at \$1,413,107, as compared with a product in 1907 of 6,839,219 gallons, with a value of \$1,526,703. The clay products are also of importance. These in 1908 were valued at \$958,395, as compared with the value of the product of 1907 of \$1,127,819. Large quantities of zinc are produced in the State and this product in 1908 was valued at \$1,648,572, as compared with a value for the product of 1907 of \$1,802,214. The State produced in 1908 733,993 tons of iron ore, as compared with 838,744 tons in 1907. A small quantity of coke is produced and the production of lime is considerable. Other important mineral products are lead, sand and gravel, cement, graphite, metallic paint, pig iron, and crystalline quartz. The value of the mineral products of the State in 1908 was \$11,052,151, as compared with a value of the product in 1907 of \$13,832,395.

AGRICULTURE AND STOCK RAISING. The acreage, production, and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 50,589,000 bushels, valued at \$30,353,000, from 1,533,000 acres; winter wheat, 1,204,000 bushels, valued at \$1,156,000, from 59,000 acres; spring wheat, 2,280,000 bushels, valued at \$2,189,000, from 120,000 acres; oats, 79,800,000 bushels, valued at \$31,122,000, from 2,280,000 acres; barley, 24,248,000 bushels, valued at \$13,579,000, from 866,000 acres; rye, 4,727,000 bushels, valued at \$3,214,000, from 290,000 acres; buckwheat, 221,000 bushels, valued at \$172,000, from 18,000 acres; flaxseed, 200,000 bushels, valued at \$392,000, from 20,000 acres; potatoes, 26,724,000 bushels, valued at \$10,155,000, from 282,000 acres; hay, 3,625,000 tons, valued at \$34,800,000, from 2,369,000 acres; tobacco, 37,170,000 pounds, valued at \$3,419,640, from 31,500 acres. The farm animals of the State on January 1, 1910, were estimated as follows: Horses, 669,000; mules, 5000; dairy cows, 1,506,000; other cattle, 1,081,000; sheep, 1,034,000; swine, 1,651,000. The wool clipped in the State in 1909 was estimated at 5,679,360 pounds.

FISHERIES. The value of the products of the fisheries of the State for the year ending December 31, 1908, was \$1,067,170. Of these products the most important in point of value was trout, of which 4,710,100 pounds, valued at \$340,360, were taken. Next were herring, 12,123,000 pounds, valued at \$322,430. Buffalo, to the value of \$103,480; whitefish, \$56,320; yellow perch, \$54,730; pike and pickerel, \$22,600; and crawfish, \$13,930, were among the other important fish taken in considerable quantities. There were 1120 independent fishermen engaged in the fisheries of the State and 891 wage-earning fishermen employed. The number of vessels engaged was 89, valued at \$194,101.

EDUCATION. The school attendance in 1909

amounted to \$11,223,262.

CHARITIES AND CORRECTIONS. There are ten institutions under the administration of the State Board of Control. These are the State Hospital for the Insane, the Northern Hospital for the Insane, School for the Deaf, School for the Blind, Industrial School for Boys, State Prison, State Public School, Home for Feeble-Minded, Wisconsin State Reformatory, and the Wisconsin State Tuberculosis Sanatorium. The total number of inmates in the various institutions on November 1, 1909, was 4055. At the same date there were 6528 insane persons under public care. The Wisconsin system of caring for the insane is different from the system of any other State, inasmuch as it separates the chronic from the acute insane. There are in the two hospitals for the insane about 1300 inmates, and of that number not more than 10 per cent. are chronic patients. All chronic patients are transferred to county asylums as soon as it has been determined that they are chronic. The expenditures for the various State institutions for the year ending June 30, 1909, was \$1,373,490.

POLITICS AND GOVERNMENT. The legislature met in regular session on January 14. Resolutions were at once introduced in both houses of the legislature calling for investigation of the manner, means, and methods by which the primary campaign and election of 1908 were conducted. The resolution was understood to be directed against Senator Isaac Stephenson, who won the Republican nomination for reelection after a close contest. The biennial message of Governor Davidson contained recommendation for a new mode of taxing personal property, for an amendment of the inheritance tax, and for other amendments to the laws in regard to taxation. He recommended a change in the public utility law to permit various minor privileges to the public, and another amendment to limit the right of the railroads to raise rates. He advocated also the placing of telephone companies under the stock and bond law, which requires the rate commission to approve any proposed issue of securities. He urged the placing of a limit in the amount which may be spent by a candidate in seeking office, and the devising of some plan by which members of one party cannot invade the primary of the other party and control the nomination. He recommended the safeguarding of deposits in trust companies to the same extent as prevails in savings banks, and requiring that bank directors be holders of a substantial amount of stock in their respective banks. He advocated steps to minimize the destruction of forests by fire, and the carrying out of some policy of reforestation. He advocated a system of industrial arbitration providing a State board to take all evidence in labor disputes and make its findings public. In view of the new \$6,000,000 capitol, he urged conservatism in expenditure.

The legislature adjourned before giving final consideration to the most important measures before it, having by joint resolution referred these subjects to special legislative committees which were to report at a special session. The subjects referred to special legislative commit-

and a State income tax.

All of these committees made extensive investigations, some of the committees going to various parts of the United States. The committees were appointed upon the theory that early in the year 1910 a special session of the legislature would be called to take up these subjects. It was also contemplated that an important constitutional provision permitting the appropriation of moneys for the purpose of acquiring, preserving, and developing the water powers and forests of the State should be considered at the special session, and for this reason this amendment failed of adoption.

The election of Senator Stephenson by the legislature was brought about only after a protracted struggle which lasted from January 28 until March 4. Senator Stephenson received the Republican nomination at the primaries, but his election was opposed on the plea that it should be delayed until the joint legislative committee which had been appointed to conduct hearings on the charges of corruption in the election had made its report. His election, however, was accomplished prior to the making of such a report. The primary election law of Wisconsin requires the publication of campaign expenditures within thirty days after election. All the other candidates made public their expenditures shortly after the primaries. Mr. Stephenson refused to make public his expenditures on the ground that he was not compelled to do so until thirty days after the date of his election by the legislature. He denied that he had spent money for corrupt purposes, although he was reported to have expended more than \$100,000 in the campaign which resulted in his nomination. At the first roll call in the legislature only 63 votes could be mustered for Senator Stephenson, the number needed to elect being 67. For 22 ballots the vote remained the same, but on the 23d ballot he received a sufficient number of votes to insure his election. The report of the legislative committee in effect exonerated Senator Stephenson of corrupt practices. On March 31 the State Senate defeated the proposed bill for local option by a vote of 17 to 11. At an election held on April 6, in which nearly 200 cities and towns voted on the no-license question, the license advocates won a sweeping victory, carrying nearly all the important towns which voted, among them Appleton, Beloit, and Sparta. On April 28 the woman's suffrage bill, which had passed the Senate, was killed in the Assembly after a long debate by a vote of 53 to 34. See **ELECTORAL REFORM.**

OFFICERS: Governor, J. O. Davidson; Lieutenant-Governor, John Strange; Secretary of State, James A. Frear; Treasurer, Andrew H. Dahl; Attorney-General, Frank L. Gilbert; Superintendent of Education, C. P. Cary; Commissioner of Insurance, George E. Beedle—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, John B. Winslow, Dem.; Associate Justices, William H. Tienlin, Dem.; R. G. Siebecker, Dem.; J. E. Dodge, Dem.; Roujet D. Marshall, Rep.; J. C. Kerwin, Rep.; John Barnes, Dem.; Clerk, Clarence Kellogg, Rep.

The State Legislature of 1909 was composed of 28 Republicans, 4 Democrats, and 1 Social Democrat in the Senate, and 80 Republicans, 17 Democrats, and 3 Social Democrats in the Assembly. The State representatives in Congress will be found in the section *Congress* in the article UNITED STATES.

WISCONSIN, UNIVERSITY OF. An institution of higher learning at Madison, Wis., founded in 1848. The attendance in 1908-9 was 4821, and the faculty numbered 397. There were in the general library, 119,044 volumes, in the law library 15,936, and in the agricultural library about 10,000, making a total of 144,980. Additions were made to the trust fund during the year. Among the changes made in the University administration during the year was the transfer of the department of home economics from the college of letters and science to the college of agriculture. A middle course in agriculture extending over two years has been established, also a course in chemistry extending over four years, and a course in mining engineering extending over four years. There has also been established a course for the training of teachers. The University comprises the college of letters and science, college of engineering, college of agriculture, graduate school, college of law, school of music, course in pharmacy, college of medicine, and the courses mentioned above. In addition to these a correspondence course is maintained with a registration of about 1500. Summer sessions are held each year, and over 1000 students are usually in attendance. The income of the University is over \$1,000,000, practically all of which is received from the State and from the United States government. The President is C. R. Van Hise.

WITHROW, JOHN LINDSAY. An American Congregational clergyman, died September 25, 1909. He was born in Coatesville, Pa., in 1837, and graduated from Princeton University in 1860. He then devoted three years to the study of theology at Princeton, and in 1863 was ordained to the ministry in the Second Presbyterian Church, at Philadelphia. After pastorates in churches in Abington, Pa., Philadelphia and Indianapolis, he became pastor of the Park Street Church, in Boston, in 1876. After ten years' service here he received and accepted a call to the Third Presbyterian Church, in Chicago, in 1887. He returned, however, to the Park Street Church in 1898, and was its pastor until his death.

WOMAN'S COLLEGE OF BALTIMORE. An institution for the higher education of women at Baltimore, Md., founded in 1888. The attendance in 1909 was 366 students, and 28 members of the faculty. There were in the library 12,000 volumes. In 1909 Dr. L. A. Blue was appointed professor of education; R. M. Gay associate professor of English; Miss Lula Joslin instructor in physics; Miss Mabel Bishop assistant in physiology, and Miss Elizabeth Gotch assistant in chemistry. The productive funds of the college amount to about \$800,000, and the total income to \$115,000. The president is Eugene A. Noble, S. T. D.

WOMAN SUFFRAGE. In all countries for which reports were available the suffrage movement in 1900 showed increased numbers and influence. Vigorous campaigns were carried on in Great Britain, the United States, South

Africa and the Continent of Europe. There were, however, no actual achievements in the matter of legislation at all comparable to those of the three preceding years, the grant of the suffrage to women in Finland (1906), in Norway (1907) and in Victoria, Australia (1908).

UNITED STATES. In four States of the United States, namely, Wyoming, Colorado, Utah and Idaho, women are admitted to the suffrage in all elections. They may vote in school elections in twenty-nine States, including the four already named and Arizona, Connecticut, Delaware, Florida, Illinois, Indiana, Kansas, Kentucky, Massachusetts, Michigan, Minnesota, Mississippi, Montana, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oklahoma, Oregon, South Dakota, Vermont, Washington and Wisconsin. In Kansas, besides the school suffrage women may vote in municipal elections and on the question of bond issues. In Montana, Louisiana and Michigan women tax payers may vote on questions of taxation. In New York, women having property "assessed upon the last preceding assessment roll" of the village may vote on a proposal to raise money by tax or assessment. In Minnesota, women may vote for library trustees. Such was the status of woman suffrage in the United States in 1909. Though nothing was accomplished during the year so far as actual legislation was concerned it was a year of unprecedented activity and of greatly increased interest in the movement throughout the entire country. The meetings were too numerous to chronicle. The amount of space given to the discussion in the press and the amount of controversial literature published was unequaled. By the end of 1909 campaigns for the submission to popular vote in 1910 of the question of amending the constitution to provide for universal suffrage were successfully carried out in four States, namely, Washington, South Dakota, Oklahoma and Oregon. The 41st annual convention of the National American Woman Suffrage Association was held at Seattle, Washington, July 1-6, 1909. Reports of progress of the movement were read for the different States. Although the suffrage bills introduced into the State legislatures in 1909 were rejected or shelved there were more spirited hearings and a greater degree of interest than in previous years. The next meeting of the Association was appointed for April 14-19, 1910, at Washington, D. C.

GREAT BRITAIN. In Great Britain women may vote for all officers except Members of Parliament. When the Liberal Ministry came into power in 1906 the woman suffrage movement had attained a high degree of influence. The members of the National Union of Women's Suffrage Societies had greatly increased in recent years. Moreover through such important bodies as the Women's Liberal Federation, the Primrose League and the temperance societies, women had taken an active part in political affairs and shown in many instances that their influence must be reckoned with. The Prime Minister, the late Campbell-Bannerman, was an avowed supporter of woman suffrage. The influence of women on Parliament was illustrated in 1908, when the clause of the Licensing bill excluding women from employment at the bars or in the offices of public houses was withdrawn in the House of Commons before it was sent to the Lords, who, as will be remembered,

a deaf ear to the immediate demands of "votes for women," of the numerous petitioners and agitators who beset them in 1908 and 1909. Mr. Asquith not only paid no attention to the importunities of the unruly suffragettes, but refused to receive the representatives of the law-abiding suffrage societies. No practical result, so far as Parliament was concerned, was attained by the numerous disorderly meetings and attempts to waylay public men and interrupt public business in 1908 and 1909. Great Britain continued in 1909 to be the storm centre. The militant element pursued their tactics of harrassing the members of the Cabinet and of interrupting speakers on public platforms. As in the previous year a great many arrests were made. While in prison a number of these women refused food except under the compulsion of the prison authorities. These and similar tactics continued to keep the subject before the public, and to that extent realized the purpose of the agitators. For some typical instances of the policy of the militant suffragists in 1909, see GREAT BRITAIN, paragraphs in *History*. The chief organization in Great Britain, the Union of Women Suffrage Societies, has steadily opposed these violent methods. Its president, Mrs. Millicent Fawcett, at the meeting of the International Woman Suffrage Alliance, April 26-May 1, declared: "Opinions greatly differ in Suffrage circles as to the effect produced on the Suffrage cause by what are known as 'militant' tactics. It is difficult for one who is completely identified with constitutional methods to judge aright the total result of unconstitutional forms of agitation. That the 'militants' have been courageous and self-sacrificing no one denies. That they have provoked discussion and aroused attention is equally obvious, and from these our cause always stands to gain. On the other hand, many of us feel a profound conviction which experience only strengthens, that women are adopting a mistaken course in appealing to violence. Our business as women asking for justice is not to rely upon physical force but in the eternal principles of right and justice. Law-abiding methods alienate no one, while methods of violence and disorder create anti-Suffragists by the hundred." The Union issued public statements in October condemning the resort to violence in political propagandism. In February on the assembling of Parliament a universal Adult Suffrage bill was introduced, and came up for its second reading on March 19, but as its introducer pledged himself not to proceed further with it, comparatively little interest was shown, and it passed by a majority of only 35 as against the majority of 179 given to the bill of 1908.

OTHER COUNTRIES. Women have the full suffrage in the Commonwealth of Australia, and are eligible to office. Since 1908 when Victoria accorded them the suffrage in state elections, they have the full suffrage in all the Australian states. They also have the full suffrage in New Zealand, Norway, and Finland. Norway's law dates from 1907, when full parliamentary suffrage was bestowed on women who already had municipal suffrage. Finland, by the law of 1906, gave the full national suffrage and made

in commerce may vote, and may serve as Judges. Tribunal of Commerce, and may serve as Judges.

WOMEN IN INDUSTRY. The National Women's Trade Union League held its second convention at Chicago during the week of September 27. There were 71 delegates present, representing the organized women in such widely scattered cities as Boston, New York, Rochester, St. Louis, Springfield, Ill., St. Paul, Kansas City, Denver, and San Francisco. Delegates were sent from the British Women's Trade Unions League and the German Union of Female Mercantile Employees, the latter a union of 25,000 clerks, stenographers and bookkeepers. After many most lively discussions the convention adopted the following legislative programme, which sets a standard for the demands of women workers upon State legislatures: The eight-hour day; elimination of night work; protected machinery, sanitary workshops; separate toilet rooms; seats for women and permission for their use when the work allows; pensions for working mothers during the lying-in period; an increased number of women factory inspectors, based on the percentage of women workers; the appointment of women physicians as health inspectors of factories and workshops where women and children are employed; and a legal minimum wage in sweated trades. The convention adopted a resolution favoring woman-suffrage, but with the demand that woman suffragists join in the campaign for further legislative protection of female workers. Some of the officers of this League took a leading part in the strike of the shirt-waist makers in New York. See STRIKES AND LOCKOUTS.

LEGISLATION. The following is a brief summary of the legislation passed in 1909 affecting women in industry. Arizona set the very high standard of an 8-hour day and a 48-hour week for women of all ages, with heavy fine upon employers for violation. Michigan fixed a 10-hour day and 54-hour week, except during the canning season, for all women and boys and girls under 18. Missouri provided a 54-hour week for all women; Rhode Island, a 10-hour day and a 56-hour week, in all manufacturing and mercantile establishments, for all women and boys under 16. Massachusetts provided similar hours for all girls and boys under 18 in manufacturing and mechanical establishments, and 58 hours per week, for all girls and boys in mercantile establishments. Minnesota restricted hours to 58 per week for all women in manufacturing and mercantile employments; New Hampshire to 9 hours and 40 minutes per day, and 58 hours per week, for all women and boys under 18 in manufacturing; Maine, to 10 hours per day and 58 per week for all girls under 18 and boys under 16; and Connecticut to 10 hours per day and 58 hours per week for all persons under 16, in manufacturing and mercantile pursuits. A 10-hour day and a 60-hour week were required in Indiana, for boys under 16 and girls under 18 in all industrial pursuits; in Louisiana, for boys under 18 and all women in unhealthful or dangerous occupations; in Nebraska, for all women in all industrial pursuits; in New York for all women in manufacturing establishments, and for women of ages 16 to 21 in mercantile establishments, except from

December 15 to January 1; in Oregon for all ages and all industrial pursuits; in South Carolina, for all operatives in cotton and woolen mills. In every case penalties were provided for violations, in most cases these penalties being adequate; moreover, the fact of employment during forbidden hours or during hours not included in the schedule required to be posted daily, was in many cases sufficient evidence to convict.

GREAT BRITAIN. There is an undoubted tendency toward better and more extensive organization among women workers. This is especially true in Germany, the United States, Australia and Great Britain. The British Women's Trade-Union League, which held its sessions at Ipswich in September (see **TRADE UNIONS**) claims 250,000 affiliated members in England, Scotland and Ireland. About 60 per cent. of these are in the cotton mills of the Lancashire district, and they together constitute over 8 per cent. of English trade unionists. This movement in England is intimately connected with the woman suffrage movement, each furthers the other both directly by active propaganda, and indirectly by stimulating class consciousness. It is significant that women were this year admitted as delegates to the Trade Union Congress, and that English trade unions strongly favor the unionization of women workers. The effect on English politics, should the woman-suffrage agitation succeed, would be momentous, considering the Socialistic tendencies of the English labor vote.

A notable achievement in the way of protective legislation, was the passage by Parliament of the Trade Boards bill, popularly called the Sweated Industries bill. This provides machinery for the fixing of the maximum number of hours and the minimum time and piece wages in the tailoring, chainmaking, lace finishing and card-board box making industries. Under the direction of the Board of Trade, all employers in each of these industries shall join in choosing representatives to a trade board; the employees shall choose an equal number; and these, with an independent chairman, shall have power to determine maximum hours and minimum wages. Violation is made punishable by fine or imprisonment.

GERMANY. The Industrial Amendment act, passed early in the year, reduced the weekly maximum number of hours for women from 65 to 58; extended by one hour the period during which night work is prohibited; provided that after each day's work eleven hours of rest must elapse. The act applies also to all workers of both sexes under sixteen years of age. It is expected to lead to the Saturday half-holiday.

WOMEN'S CLUBS, GENERAL FEDERATION OF. An organization founded in 1892. It is composed of individual clubs in State and Territorial federation, and there are affiliated organizations with large membership lists. There are in the United States about 4500 Women's Clubs affiliated with the General Federation. The membership is about 500,000. Clubs applying for membership must contain no sectarian or political test in their constitution, the object being social, literary, artistic, or scientific culture. The officers in 1909, were as follows: President, Mrs. Philip M. Moore; first vice-president, Mrs. Josiah Evans Cowles; second vice-president, Mrs. John Dickinson Sherman; recording secretary, Mrs. Henry H. Dawson; corresponding secretary,

Mrs. Frank N. Shiek; treasurer, Mrs. George O. Welch, and auditor, Mrs. L. L. Blankenburg.

WOODWARD, DAVID A. An American educator and artist, died November 29, 1909. He was born in 1823 in Philadelphia. While still a young man he went to Baltimore where he was placed in charge of the Maryland Institute, where he remained for 25 years. He discovered the solar print method of portraiture, and in his later years devoted himself to portrait painting. He was said to be the oldest Mason in the State of Maryland, having joined that body in 1847.

WOOL. See **STOCK RAISING**, and the articles on the **STATES**.

WORKMEN'S COMPENSATION. See **EMPLOYERS' LIABILITY AND LABOR LEGISLATION**.

WORTHINGTON, HENRY C. An American soldier and public official, died July 29, 1909. He was born in Cumberland, Md., in 1828, and after studying law removed to California. He was successively a member of the California Legislature, Delegate in Congress from Nevada, Collector of the Port of Charleston, S. C., Minister to Uruguay, Judge of a United States Court, and major-general of militia. He was an intimate friend of Lincoln, and was the last survivor of the pall-bearers at the latter's funeral.

WRESTLING. In professional wrestling circles, the chief contest of 1909 was that between Frank Gotch and Yussif Mahmoud for the heavy-weight title. Gotch won in two straight falls, the first taking 8 minutes, and the second, 9 minutes 8 seconds. The light-weight professional championship went to Max Lutberg, and the middleweight to Henry Gehring. The national championships of the Amateur Athletic Union were decided as follows: 120-pound class, George Taylor, Newark; 115-pound class, Gus Bauers, Newark; 125-pound class, Louis Ruggerio, New York; 135-pound class, D. Fleisher, New York; 145-pound class, C. Johnson, Swedish-American A. C.; 158-pound class, Fred Nargafies, New York, and heavyweight class, E. N. Payne, New York.

In the intercollegiate bouts Yale for the sixth time won the championship with a total of 13 points. Princeton scored 8, Cornell 6, and Pennsylvania 1.

WRIGHT, CARROLL DAVIDSON. An American economist and educator, died February 20, 1909. He was born at Dunbarton, N. H., in 1840. He received an academic education, and began the study of law. He abandoned this, however, to enlist as a private in the Civil War, where he rose to the rank of colonel. He served in the Massachusetts State Senate in 1872-3, and was chief of the State Bureau of Statistics and Labor from 1873 to 1888. In 1880 he was appointed Supervisor of the United States census for Massachusetts, and in 1885 was appointed United States Commissioner of Labor, holding the office until 1905. During this time he directed the completion of the 11th census. In 1902 he served as member and recorder of the Anthracite Coal Strike Commission. He held chairs and lectureships in various universities until 1902, when he became president of Clark College. President Wright was a voluminous contributor to periodicals on economic and statistical subjects, and wrote also many books, among them the following: *The Factory System of the United States*

English scholar, died on March 22, 1909. He was born in Dublin, in 1836, and was educated at Trinity College, Dublin, and at Exeter College, Oxford. He studied also at Leipzig. From 1859 to 1898 he preached in various charges, but his most notable work was as lecturer and examiner at several universities. He was Bampton Lecturer at Oxford, in 1878, and Grinfield Lecturer in Septuagint, 1893-97, at the same university. He also acted as examiner and lecturer at Trinity College, Dublin; University of London; Victoria University, Manchester, and the University of Wales. In 1898 he became clerical superintendent of the Protestant Reformed Society. Dr. Wright was a voluminous writer. Among his works are: *Grammar of Modern Irish* (1858); *Biblical Essays* (1885); *Bible Readers' Manual* (3d ed. 1896); *Genuine Writings of St. Patrick, with Life* (1902); *Daniel and his Prophecies* (1902), and *The Book of Isaiah and other Historical Studies* (1906). He was also joint editor of the *Statutory Prayer Book* (1902).

WYLLIE, SIR WILLIAM HUTT CURZON. An English East Indian official, assassinated by an Indian student, Dhenigra, on July 1, 1909. He was born in Cheltenham, England, in 1848, and was educated at Marlborough and Sandhurst. In 1866 he entered the army, and in 1869 was appointed to the Indian Staff Corps. He was transferred to the political department in 1879. He fought in the Beluchistan War, and in the Afghan campaign of 1879 and 1880, and received a decoration for his services in the relief of Kandahar. In 1881 he was made secretary to the Governor of Madras. He was successively Resident in Nepal, Governor-General's Agent in Central India, and Governor-General's Agent in Rajputana. He rose to the rank of lieutenant-colonel. Lieutenant-Colonel Wyllie was shot while attending a reception at the Imperial Institute in London. His murderer was an educated Indian about 20 years of age, and was a stranger to his victim. Dhenigra killed, at the same time, Dr. Lalca, a physician of Shanghai. See INDIA, paragraphs on History.

WYOMING. One of the Western Division of the United States. Its area is 97,914 square miles. The population in 1909, according to a Federal estimate made in that year, was 109,244.

MINERAL PRODUCTION. The State is an important producer of coal. There were mined in 1908, 5,489,902 short tons, with a spot value of \$8,868,157. The coal mining industry of the State suffered in 1908 from an over supply of fuel mined during the summer and early fall of 1907, when, because of repeated warnings of a fuel famine by the transportation companies, consumers laid in supplies of fuel in order to avoid a repetition of the preceding winter when the public suffered greatly from the scarcity of coal. The coal mined in 1908 decreased from that mined in 1907 by 763,068 short tons in quantity, and \$804,511 in value. In September a number of mines were shut down on account of failure to agree on the wage scale. After an idleness of thirty days some of the mines resumed operations, and in a short time the others followed. As a result of the agreement made with the United Mine Workers, nearly all the

Hanna, No. 1 Mine of the Union Pacific Coal Company, which resulted in the death of 59 men, including the mine inspector of the district and many men who were engaged in rescue work. The State produces copper. In 1908 the production amounted to 2,416,197 pounds, as compared with 3,026,004 pounds in 1907. The State produces also, although in relatively unimportant quantities, clay products, gold, gypsum, lime, silver, stone and precious stones. The value of the mineral products of the State in 1908 was \$9,453,341, as compared with \$10,671,574 in 1907.

AGRICULTURE AND STOCK RAISING. The acreage, production and value of the principal farm crops of the State in 1909, according to figures of the United States Department of Agriculture, were as follows: Corn, 140,000 bushels, valued at \$109,000, from 5000 acres; winter wheat, 812,000 bushels, valued at \$804,000, from 25,000 acres; spring wheat, 1,485,000 bushels, valued at \$1,470,000, from 55,000 acres; oats, 3,500,000 bushels, valued at \$1,750,000, from 100,000 acres; barley, 124,000 bushels, valued at \$92,000, from 4000 acres; rye, 26,000 bushels, valued at \$23,000, from 1000 acres; potatoes, 1,600,000 bushels, valued at \$1,008,000, from 10,000 acres; hay, 665,000 tons, valued at \$5,918,000, from 277,000 acres. The number of farm animals in the State on January 1, 1910, was as follows: Horses, 148,000; mules, 2000; dairy cows, 27,000; other cattle, 959,000; sheep, 7,316,000; swine, 21,000. Wyoming ranks first among the States in the number of sheep. The wool clipped in 1909 was estimated at 37,664,000 pounds.

About 15,000 new people settled in the State in 1909, with the object of farming by irrigation or by the dry farming methods.

EDUCATION. During the school year 1909 the number of pupils enrolled was 23,182. The number of pupils of school age between the ages of 6 and 21 in the State was 29,780. The number of male teachers was 121, and female, 854. The average monthly compensation of male teachers was \$75.57, and of female teachers, \$56.84. During the session of the legislature of 1909, there were several laws enacted relating to the schools of the State. A law providing for the wider classification of certificates, the extent of the power of the State Board of Examiners, and granting authority to the State Superintendent on recommendation of the State Board of Examiners to revoke certificates already issued, was enacted. A much larger appropriation for conducting county institutions was provided. The total expenditure for the schools of the State in 1909 was \$678,773.

POLITICS AND GOVERNMENT. The most important measures passed at the legislative session of 1909 will be found in the paragraph *Legislation* below. In March a settlement was effected of the suit against the Union Pacific Railway, brought by the government, involving coal lands in the State, estimated to be worth a million and a half dollars, and embracing about 4600 acres. It was claimed that this land was acquired by agents of the company through what is known as "dummy" interests. The company did not defend the suit, but instead, reconveyed the lands to the government, and

also paid nearly \$33,000 in settlement of the coal mined on the land. In addition, the company lost about \$90,000, paid as purchase price for the land.

LEGISLATION. Never since the organization of the Territory or State, had there been any uniform method or standard of assessing property. Tax dodging was the rule, and property was returned at about twenty cents on the dollar. Much was not returned at all. The last legislature provided for a Commissioner of Taxation, with full power to enforce the law, assessing property at its full market value, and to assess mortgages; also to find all the property. The assessed valuation of the State under the new system rose from sixty millions to two hundred millions in 1909. Saloons were also legislated out of all unincorporated towns and villages.

OFFICERS: Governor, B. B. Brooks; Secretary of State, Wm. R. Schnitger; Treasurer, Edward Gillitte; Auditor, Leroy Grant; Adjutant-General, P. A. Gatchell; Attorney-General, W. E. Mullen; Superintendent of Education, A. D. Cook—all Republicans.

JUDICIARY. Supreme Court: Chief Justice, Chas. M. Potter; Associate Justices, Cyrus Beard, Richard H. Scott; Clerk, W. H. Kelly—all Republicans.

The State Legislature of 1909 was composed of 21 Republicans and 2 Democrats in the Senate, and 45 Republicans and 5 Democrats in the House. The State representatives in Congress will be found in the section *Congress* of the article UNITED STATES.

WYSE, LUCIEN NAPOLEON BONAPARTE. A French engineer, died June 15, 1909. He was born in 1845, the son of Sir Thomas Wyse and Princess Letitia Bonaparte. He was, for a time, an officer in the French navy, and on his retirement he conducted a series of explorations in Central America. These led to the perfecting of the project of the Panama Canal. Through his activity France secured concessions from Colombia, and when these were in danger of lapsing, he arranged for a prolongation. He later turned over his interests in the enterprise to Count Ferdinand de Lesseps. Wyse's book on the canal was crowned by the French Academy in 1885. Among his other works are: *Travels Through the Andes and Pampas* (1869); *From Montevideo to Valparaiso by the Straits of Magellan and the Patagonian Canals* (1877).

YACHTING AND MOTORBOATING. The principal yachting event of 1909 was the international contest off Marblehead, Mass., for the cup offered by President Taft. The entries included three German under yachts—*Hevella*, *Sechund II*, and *Margarethe*—and three American yachts—*Wolf*, *Joyette* and *Ellen*. Six races were sailed between August 30 and September 7, of which the *Joyette* won three, and the *Ellen* two. The *Hevella* was the only German boat to win a race, having been the victor in the third sailed. The 670-mile race from New York to Bermuda, held on June 5-8, was won by G. S. Runk's *Margaret*, whose corrected time was 73 hours 51 minutes 12 seconds. W. L. Baum's *Amorita*, which finished third in the elapsed time of 78 hours 19 minutes 15 seconds, broke all previous records for the race. Other important ocean races in 1909, and the winners of each were: City Island to Vineyard Light-

ship (285 miles) H. A. Jackson's *Victory*; Cape May race (325 miles) for schooners, W. O. Torven's *Tammany*; New York to Block Island (100 miles), A. C. Jones's sloop *Nutmeg*. The Astor and King Edward cup races were held at Newport, R. I., August 6-7. The winners of the various cups were: Sloop cup, A. S. Cochran's *Avenger*, also the winner in 1908; schooner cup, F. F. Brewster's *Elmina*; King's cup, G. M. Pyncheon's *Istalena*.

Motor boating in 1909 experienced a remarkable increase in popularity, more races and regattas being held than ever before. Of world-wide interest was the Monte Carlo Motor Boat Carnival, in which several different countries were represented. The principal race of the carnival was the Coupe des Nations, which was won by the *Wolsley-Siddleley*, a Great Britain entry. The German boat *Lesetotte* finished second. E. J. Schneder's *Diate II*, the only American contestant, had to quit early in the race. A carnival in the United States which attracted considerable interest was that held in the Hudson River in September. Of the ocean races in 1909, the more important were the New York to Bermuda (650 miles), won by R. Levering's *Heather*; the Bermuda to New York, won by J. G. H. Whitaker's *Ilys*, and the New York to Marblehead (285 miles), won by F. D. Giles's *Eliano II*.

YALE UNIVERSITY. An institution of higher learning, at New Haven, Conn., founded in 1701. The attendance in 1908-9 was 3450, and the number of officers was 485. The students were divided as follows: Graduate school, 385; college, 1273; Sheffield scientific school, 953; art school, 47; music school, 95; forest school, 70; department of theology, 106; department of medicine, 140; department of law, 434. Among the changes in the faculty during the year were the retirement of Professor William Graham Sumner, professor of political and social science, and Bernadotte Perrin, professor of Greek history. In addition to these retirements, Charles Hubbard Judd, professor of psychology, resigned to accept the headship of the school of pedagogy at the University of Chicago. Ambrose White Vernon resigned the chair of practical theology to resume active work in the pulpit, and John Hays Hammond, resigned as a member of the Governing Board of the Sheffield scientific school. Professor Leslie Paige Breckenridge, of the University of Illinois, became the head of the courses in mechanical engineering, and Rev. Henry Hallam Tweedy succeeded Professor Vernon in the chair of practical theology. Mr. Hammond's place was filled by James Farley McClelland, of Leland Stanford Jr. University, as professor of mining engineering. Professor Henry Crosby Emery of the department of political economy, was appointed by President Taft, chairman of the newly created tariff board, and Lee McClung, treasurer of the University, resigned his position to become Treasurer of the United States, by the appointment of President Taft. The most important individual contribution made to the University during the year was a gift of \$100,000 from Mrs. Morris K. Jesup, for a professorship of silviculture in the Forest School, in memory of her husband. There were received during the year a large number of anonymous gifts, which, added to those otherwise received, will enable the University to meet the conditions of the General Education Board

came to the University. The library contained, in 1908-9, about 550,000 volumes. The gross addition to the funds of the University for the year, not including specific gifts to income, amounted to \$1,400,455, and gifts to income amounted to \$69,059. The available receipts for expenses amounted to \$1,240,208, and the expenditures to \$1,226,269. The funds of the University amounted on June 30, 1909, to \$10,362,731, which includes real estate. The president is Arthur T. Hadley.

YI WAN YON. Prime Minister of Korea, assassinated December 22, 1909. He had held the office of Prime Minister since May, 1907, when the Korean Cabinet was rearranged at the suggestion of Japan. He was previous to that time Minister of Education, and Marquis Ito secured him the premiership by exerting his influence with the Emperor of Japan. He was the strongest supporter of Japan's policy in Korea. Late in 1909 he was admonished by Viscount Sone, the Japanese Resident-General, for overactivity in opposing the Ilchinhoe party, and agitating for amalgamation with Japan.

YOUNG, ELLA (FLAGG). See EDUCATION IN THE UNITED STATES, and ILLINOIS.

YOUNG MEN'S CHRISTIAN ASSOCIATION. An undenominational association for the carrying on of all departments of Christian work. The first association was organized in London, in 1844. They now exist in every continent and in nearly every country of the world. In America they are found in 10 countries; in Europe, in 24; in Asia, 12; in Africa, 5; and in Australasia, 3. The total membership of the association in 1909 was 836,186. The associations occupied 1214 buildings, valued at \$58,045,900, and there were 1492 paid general secretaries. In North America there were 1914 associations, with 456,924 members and 680 buildings, valued at \$46,872,630. There were 2687 employed officials. In the educational classes under the auspices of the association were 46,945 members: In physical work, 216,262; in Bible classes, 92,586. By departments the classifications were as follows: Members in the railroad association, 75,721; in student associations, 53,590; in college associations, 10,460; in boys' departments, 82,830. In city associations there were 62,067 men in industrial occupations. For current expenses there were expended in 1909, for local work, \$6,783,495; State and provincial work, \$422,332; internal committee—home work, \$254,839; foreign mission work, \$178,857. There were 69 international employed secretaries in the home field, and 80 in the foreign field. The North American International Committee is composed of Lucien C. Warner, chairman; F. B. Schenck, treasurer; and R. C. Morse, general secretary.

YOUNG WOMEN'S CHRISTIAN ASSOCIATION, NATIONAL BOARD OF. An organization formed in 1906, to unite in one body the Young Women's Christian Associations of the United States, to establish, develop, and unify such associations, to advance the physical, social, intellectual, moral and spiritual interests of young women, and participate in the work of the World's Young Women's Christian Association. The national organization con-

sists of resident members, and 1 representative from each of the Territorial and State committees. It maintains a staff of 23 national secretaries and special workers, and an office staff of 27. The membership is about 120,000. The Association maintains a national training school, and eight preliminary training centres, and also does valuable work in providing young women with employment and with accommodations for living. The World's Young Women's Christian Association was founded in 1894, and 17 national associations are now affiliated. These are Great Britain, United States, Germany, Italy, France, Australasia, Finland, Holland, Japan, Canada, Portugal, South Africa, China, Sweden, India, Denmark and Hungary. The Executive Committee is composed of a resident membership in London, and two representatives from America and other countries. The headquarters are in London. The Fourth World's Conference will be held in Berlin, Germany, in 1910. The president is Miss Grace H. Dodge, and General Secretary, Miss Mabel Cratty.

YUAN SHIH-KAI. See CHINA, paragraphs on *History*.

ZALINSKI, EDMUND LOUIS GRAY. An American military officer, died on March 10, 1909. He was born at Kurnich, Prussian Poland, in 1849. His parents came to the United States when he was four years of age. In 1864 he entered the Union Army as aid-de-camp to General Nelson A. Miles. He served to the end of the war. He was professor of military science in the Massachusetts Institute of Technology from 1872 to 1876. From 1883 to 1889, he devoted his attention to the development and perfecting of pneumatic dynamite torpedo guns. He retired from active service in 1894, and was promoted to the rank of major in 1904. Major Zalinski invented several important military devices.

ZANZIBAR. A British protectorate on the eastern coast of Africa, composed of the islands of Zanzibar (640 square miles), Pemba (380), Lamu (56), Manda, Patta, and Siwa; a ten-mile coast line from Wanza to Kipini; and the port of Kismayu with a ten-mile radius. Estimated population of Zanzibar (1907), 176,000; of Pemba, 60,000. Capital, Zanzibar, with 55,750 inhabitants. The negroes are mostly Swahili; the Arabs number about 10,000, and control a great part of the industrial interests. The foreign population is largely engaged in trading. Mohammedanism (Sunni sect), is the prevailing belief; the Sultan and his family are of the Ibadhi sect. There are Protestant and Catholic missions. Zanzibar produces four-fifths of the world's clove crop, copra, ivory, rubber and gum-copal. The imports in 1908 amounted to £969,841, against £1,232,957 in 1907; exports, £977,628, against £1,070,067 in 1907. The principal articles of export were valued (1907) as follows: Cloves, £396,121; copra, £137,633; ivory, £57,502. The countries of origin and destination for two years are given on next page.

The statistics are for goods actually handled at the port of Zanzibar, and take no account of great quantities of goods passing through Zanzibar in mail and other steamers, and those

	Imports	Exports
	1907	
British India	£490,892	£197,944
Great Britain	193,242	142,474
German East Africa	128,127	107,638
Germany	62,022	146,085
United States	47,983	39,170
	1908	
	Imports	Exports
British India	£344,538	£265,387
Great Britain	184,175	89,891
German East Africa	110,838	197,658
Germany	40,240	.....
United States	32,690	.....

transhipped from one coasting vessel to another in the harbor without being handled; and they give, therefore, an inadequate idea of the importance of Zanzibar as the centre of trade in East Africa. The total tonnage of ocean-going steamers entered at the port in 1908 was 445,350, exclusive of a large coasting and dhow traffic extending to Bombay, Arabia, the Comoro Islands, and Madagascar. There are seven miles of light railway. The Sultan (Sezzid), Ali bin Hamond (born June 7, 1884, succeeded his father July 20, 1902), is a mere figurehead. British Agent and Consul-General (1909), E. A. W. Clarke. The Zanzibar domains on the mainland extending to the mouth of the Juba are administered by the Governor of the East Africa Protectorate.

ZERRAHN, CARL. A German musician, died December 29, 1909. He was born at Malchow, in the Grand Duchy of Mecklenburg-Schwerin, in 1826. He began the study of music in his 12th year, and afterwards pursued his studies in Hanover and Berlin. In 1848 he joined a band of young musicians and came to the United States, giving concerts under the title of the Germania Musical Society. The tour was a great success, and when the Germania Society disbanded, Zerrahn was chosen to succeed Carl Bergmann as conductor of the Handel and Haydn Society, of Boston. He was for 42 years the conductor of this Society, a record unparalleled in musical history. He retired in 1898 and returned to Germany, where he lived until a few years previous to his death, when he again came to the United States. Aside from his long association with the Handel and Haydn Society as conductor, his professional life included an active participation in the organization and direction of the great musical jubilees of 1869 and 1872, the direction of the old Orchestral Union concerts, those of the Harvard Musical Association, and the Philharmonic Orchestra; for many years those of the Orpheus Musical Society, for 30 years the annual Worcester Musical Festival, and the concerts of the Salem Oratorio Society, as well as the direction for many years of the choral societies and festivals in cities in New Hampshire, Vermont, Massachusetts and New York.

ZINC. The year 1908 was unfavorable in the zinc smelting industry. It began with low prices and probably the largest stocks in the history of the industry. Conditions improved during the first quarter, but by the middle of the year was back to the point at the beginning. The latter half of the year was marked by a gradual improvement. The average number of

retorts in operation was estimated at 56,500, or 60 per cent. of the total, 193,958. Spelter stocks were reduced during the year by about 35 per cent. Owing to the reduced output in 1908, the United States lost first place in the world's production, and Germany, with the combined product of Silesia, in the Rhine district, again taking first position. The zinc mining industry reflected the condition prevailing in the smelting industry. At the close of the year there were unsold in the ore bins of the Joplin region over 6000 tons of blende concentrates. Many of the large mines in this district, which were closed in the latter part of 1907, remained closed during 1908.

The total production of spelter in the United States in 1908 was 210,424 short tons. Of this, 190,749 was from domestic ore and 19,675 from foreign ore. Missouri was the first of the States in point of production 123,655 short tons being mined. This is 64.83 per cent. of the total production in the United States. Colorado occupies second place and Wisconsin third. The world's production of spelter in 1908 declined, 17,010 tons, or 2.1 per cent. of the production in 1907. The greatest falling off, as indicated above, was in the United States. Other countries which had a decreased production were England and Poland, but this decrease was made up by Belgium, with a total gain of 11,544 tons. The production in Germany also increased. The total production in 1908 was 796,832 short tons, as compared with 813,842 in 1907. The United States imported zinc in 1908 to the value of \$90,389.

The world's production of zinc in 1909 was estimated at the close of the year at 773,870 long tons, as estimated by the *Engineering and Mining Journal*. Of this the United States was credited with 238,455 tons, an increase according to this authority of 50,499 tons over the product of 1908. The European countries except Austria, increased their production, but the gains were small in most cases, only Great Britain and Holland having any considerable changes.

ZOOLOGICAL SOCIETIES. The Deutsche Zoologischen Gesellschaft met at Frankfurt a.M. June 1 to 3. A noteworthy feature of the meeting was an address by Professor A. Lang. The president of the Zoology section of the American Association for the Advancement of Science, which met in Boston, in December, was Professor C. J. Herrick, who delivered an address on "The Evolution of Intelligence and its Organs." Since the American Society of Zoologists, under the presidency of Professor H. S. Jennings, met at the same time, no technical papers were read before the above section. In connection with the above, the American Society of Naturalists, held a special meeting at which papers relating to various phases of evolutionary research were read. The president's address, given by Professor T. H. Morgan, was on "Chance or Purpose in the Evolution of Organisms."

ZOOLOGY. Zoological research of the present day, aside from the historically older descriptive anatomy and embryology, the results of which fill a large part of the literature, has been to a large extent conducted along experimental lines. This experimentation may be studies of the phenomena of regeneration, i. e.,

problems are very technical, and the results difficult to summarize in any popular fashion. A possibility of important practical results following from regeneration has been pointed out by Stockard, who has written extensively on this subject, and who thinks he can see an analogy between the behavior of regenerating tissue and that of morbid growths, such as cancer. In view of the very great importance which the study of cancer has at the present time, it is to be hoped that further research will confirm the accuracy of this suggestion.

Siedlecki has studied the habits and embryology of the Javanese flying frogs, *Polypedates reinwardtii* and *P. leucomystax*. The latter is more abundant, but the former was easier to catch, and most of his observations were on it. The sexes are colored much alike, but the female is larger than the male. The immature female can be distinguished from the male by the larger size of the eyes in the male, and the absolutely as well as relatively greater length of the vocal chords. The animal adheres very closely to trees, glass of an aquarium, etc., using as adhesive organs, not only the pads on the toes, but the skin of the ventral surface of body, a preanal skin fold, and a portion of the chin. When seen from below, as through the glass to which it is adhering, the whole body looks like an oval sucker. The attachment may be so close that it is retained after death.

The muscles of the legs are very strong, so that the animal is a good swimmer and jumper. In jumping down from a high place, it uses the webs on its feet as parachutes, and can jump from considerable heights without injury. This is useful in enabling it to escape birds and tree snakes. The breeding season is apparently mainly in March. Copulation is at night, the eggs being laid early in the morning. About 60 to 90 are laid, enveloped in slime, and deposited in a rolled up leaf, where the young undergo their development. The outer portion of the slime hardens, while the liquid in it collects in the centre, and in this the tadpoles live for a time after hatching. Later they drop to the ground, where if they happen to drop into a pool, they develop farther. They are not necessarily killed if they happen to drop on dry ground, for tropical showers may wash them into pools.

Goodrich returns to the discussion of the structure of the *Amphioxus* nephridium. In previous papers he had maintained that this has no internal opening, but these results were disputed by Boveri, who described such openings as present. Goodrich thinks this a mistake because, 1—in thin sections a definite partition wall can always be demonstrated across the inner end of nephridium; 2—the living nephridium has been seen to contain a liquid under such pressure that the end bulged, which it would not do if there were an opening in it,

series of papers in the *Quarterly Journal of Microscopical Science*, dealing with the anatomy and reproduction of these organisms.

Steche has published in *Zeitschrift f. Wissenschaftliche Zoologie*, a study of the light producing organs of *Anomalops katoptron* and *Photoblepharon palpebratus*, two fish from the Malay Archipelago, and concludes that light organs in fishes are of two sorts: 1, Acinose glands, at first open, but which with further specialization lose their ducts, and are changed into rounded sacs. These lie on the head or on body appendages, so that their light illuminates the field of vision of the fish. They are plentifully supplied with blood and nerves, and are larger than those of the second class. 2, a group composed of gland like cells, but not grouped into glands, and are sparingly provided with blood and nerves, and it is not clear whether they are derived from glands or from sense cells. They lie in the cutis along the back. Light produced by the first group is an extracellular product, constant and intense, and not affected by stimulation. That of the second group is called out by stimulation, never appearing spontaneously, and when it appears, increases gradually to a maximum. The organs found in the above fishes belong to the first group. They are absolutely as well as relatively the largest light producing organs found in fishes, which is the more surprising since these are not deep sea forms.

Miller has made an ecological study of the common toad. From experiments he concludes that in hibernating, they go down below the freezing line if possible, and if prevented from going as deep as this, are killed by the cold. If kept through the Winter in a warm room, they do not have a period of lethargy. While very voracious, the digestive power of the animal is slow, so that it can digest only one meal a day, and usually feeds less frequently than this. As an insect eater, the economic importance of the toad is considerable, though since it eats both beneficial and injurious insects, an exact estimate is difficult to make. For the market gardener, the value would be more than for the ordinary farmer, a conservative estimate of the value to the former being \$5.00 a year for each toad.

Jacobs, in opposition to Whitney, finds that rotifers are able to withstand drying, and will revive after long desiccation.

Mast, from a study of the reactions of *Didinium*, a ciliate infusorian, concludes that the trichocysts are not organs of offense, but are used solely for defensive purposes. G. R. Warriner has reinvestigated the question as to whether the New Zealand Kea actually kills sheep, and finds evidence that it does. It attacks the kidney, more because that is the easiest region in which to get a foothold, than because of any especial fondness for this organ.

THE END

